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THE JOURNAL

OF THE

American Medical Association

Subscription, $7.00 | PUBLISHED WEEKLY | Single Copies, 25 Cents

VOLUME 95, No. 14 | 535 North Dearborn Street, CHICAGO, ILL. | OCTOBER 4, 1930

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Entered as Second-Class Matter, June 25, 1885, at the Postoffice at Chicago, Ill., under Act of March 3, 1879. Acceptance for mailing at special rate of postage provided for in Sec. 1103, Act of Oct. 3, 1917, authorized on June 14, 1918. If undeliverable, forwarding and return postage is guaranteed.

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The Journal of the
American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 95, NO. 14 CHICAGO, ILLINOIS OCTOBER 4, 1930

CONTROVERSIES REGARDING SYPHILIS

STATISTICS AND CLINICAL IMPRESSIONS *

W. H. GUY, M.D.
PITTSBURGH

Experience is often misleading and clinical impressions are often fallacious; limited and unanalyzed statistics are of no more value than faulty clinical impressions. These facts are nowhere better exemplified than in a review of the literature with reference to certain controversial statements concerning syphilis. Has the incidence of syphilis been increasing or diminishing? Is neurosyphilis more frequent since the advent of arsphenamine? Is the incubation period of neurosyphilis shorter since the introduction of the arsenicals? Are the arsphenamines neurotropic? Is optic atrophy more frequently seen following arsenical therapy and is arsphenamine contraindicated when optic atrophy has developed? These are but a few of the questions that lead to futile debate. Honest opinions of dependable clinicians are widely divergent. In an attempt to arrive at some conclusions independent of personal opinions and prejudices, numerous sources of information have been invoked to centralize data into one communication bearing on the foregoing questions. The first fact to emerge from a formidable list of articles reviewed was that, while clinical impressions are of value, they are not at all reliable. Taking one question as an example, of fifteen articles presenting conclusions based on personal impressions, eight opinions of eminent scientists were diametrically opposed to those of seven equally prominent authors. Statistical studies tended more toward uniformity and therefore only statistics or opinions with a statistical background have been utilized in this paper.

THE INCIDENCE OF SYPHILIS

Statistics on the incidence of syphilis in general are difficult to obtain. In only a few instances are venereal diseases reported except in the armies and navies. Chart 1 was compiled from the incidence of syphilis in the various armies and navies of the world plus data from the civil population in a few countries.

A reduction in the incidence of syphilis is therefore apparent in late years that must be more than apparent considering the increased interest in the subject and refinements in diagnostic procedures. It is difficult to explain the peaks and low levels in the incidence curves. Contributary to the high incidence rates in chart 1 were the high figures supplied by armies of occupation. Figures from the military forces of the same countries at home or during actual warfare were much lower. But marked fluctuations are the rule for all statistics. Thus in Denmark,[1] where legal control exists, the same phenomenon is to be noted. Sweden [2] records a recent increase. The hospital St. Louis reported an increase of 150 per cent in 1925 over 1924. Jeanselme [3] thought the large immigration of foreign workers a factor in this instance. Incidence peaks in certain countries corresponded to war dates but as often did not. During and immediately following the World War a general increase is to be noted. Unfortunately, in several of the largest units no figures are available for this period. Statistics from the forces of the United States form the basis of chart 2.

While a moderately increased morbidity is to be noted in the military forces of the United States during and immediately following the World War, the peak does not compare to those developed when the country was not at war. But statistics from military forces do not necessarily indicate the incidence rate for the civil population, and accurate data from the latter sources are difficult to obtain. Reports from the League of Nations in 1927 and 1928 indicate a decrease of syphilis in general with an increase in a few instances. Gumpert,[1] utilizing these reports for an epidemiologic forecast, thought that modern treatment would never eradicate syphilis. Almquist is quoted to the effect that marked variations are bound to occur and that the peak of the reactive epidemiologic curves are more marked, the greater the dip in the curve. Gottstein is quoted as saying that for all epidemics the law of waves must prevail. Seasonal fluctuations, cultural influences and exhaustion of susceptible material also enter into the question. In military life the influence of prophylaxis and the removal of sources of contagion by prompt treatment of infected individuals is to be considered. Jadassohn [4] reports that in fourteen countries with a total of fifty sources of information a general decrease in the incidence of syphilis in recent years is attributed to modern methods of treatment, particularly with arsphenamine.

THE MORBIDITY, INCUBATION PERIOD AND MORTALITY OF NEUROSYPHILIS

Numerous authors, usually from personal clinical impressions, assert that neurosyphilis is on the increase, and they attribute this increase to the general use of arsphenamine. Most authors dealing with statistical

* From the department of Dermatology, University of Pittsburgh School of Medicine.

* Chairman's address, read before the Section on Dermatology and Syphilology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Gumpert, Martin: Is Syphilis Dying Out? Dermat. Wchnschr. **87:** 136, 1928; abstr. Ven. Dis. Inform. **10:** 133 (March) 1929.
2. Social work in Sweden, Bull. Protect. de l'enfance. **80:** 445 (April) 1929; abstr. Ven. Dis. Inform. **10:** 558 (Dec.) 1929.
3. Jeanselme and Burnier: Present Recrudescence of Syphilis in the Neighborhood of Paris, Bull. Acad. de méd. **100:** 749-752 (July 3) 1928; abstr. Ven. Dis. Inform. **10:** 133 (March) 1929.
4. Jadassohn, J.: Syphilisrückgang und Salvarsan, Klin. Wchnschr. **5:** 2248-2252 (Nov. 26) 1926.

studies from Germany,[5] Austria,[6] Hungary,[7] Czechoslovakia,[8] Switzerland,[9] France[10] and Denmark[11] are guarded as to the value of their statistics but in general report a stationary or decreased incidence of dementia paralytica covering a period from 1900 to 1922. For instance, Bumke, from admission data of all the clinics of Saxony, reported 13 per cent patients with dementia

TABLE 1.—*Mortality from Syphilis*

	1917	1923
Australia	8.2	7.2
England	14.6	9.9
United States	20.0	16.7
Italy	18.0	13.2
Netherlands	8.1	5.7

paralytica for 1915, and 14 per cent for 1918, the rate falling steadily to 8 per cent in 1922. Combined statistics from Bavarian clinics showed the proportion of patients with dementia paralytica approximately the same over a term of years. A moderate increase in the incidence of dementia paralytica is to be noted in numerous statistical reports covering the period of 1905-1916-1918 following by gradually decreasing figures up to 1922. It is suggested in more than one communication that the early increase previously noted may be illusory or real in view of the introduction of the Wassermann reaction and lumbar puncture, and the acceleration in the appearance of neurosyphilis as the result of inadequate arsphenamine therapy.

In the United States[12] as a whole, cases of dementia paralytica in 1910 constituted 6.4 per cent of admissions to hospitals for mental disease and, in 1922, 7.9 per cent, according to the bureau of the census. The increase noted in 1922 over 1910 is offset as noted in

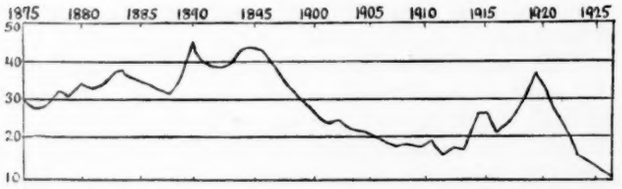

Chart 1.—Incidence of syphilis per thousand available figures in the combined armies and navies of the world from 1875 to 1926. The greater portion of the statistics were obtained from Jadassohn's Handbuch der Haut- und Geschlechtskrankheiten, Berlin, Julius Springer, 1927.

the census report by virtue of the fact that the 1910 figures from some states were so low that the data must be considered incomplete. Thus, eleven states reported less than 2 per cent, and four states did not report any admissions for dementia paralytica. It is interesting to note that in New York State admissions for dementia paralytica rose from 7.82 per hundred thousand of the general population in 1922 to 8.02 in 1928, and during the same period the mortality per thousand deaths fell from 5.28 to 3.89. In Massachusetts the rate fell from 8.31 in 1908 to 6.41 in 1928 and the death rate over the same period from 5.87 per hundred thousand of population to 4.72. In the United States[13] as a whole, mortality for tabes and dementia paralytica per hundred thousand fell gradually from 8.2 in 1921 to 6.4 in 1927. Over the period 1922 to 1928 in England[14] and Wales the death rate per hundred thousand for dementia paralytica fell from 4.44 to 3.57. *Health News*[15] supplies the figures on the mortality from syphilis, including tabes and dementia paralytica, given in table 1. The statistics on the incidence and mortality from tabes show the same trend as those on dementia paralytica.

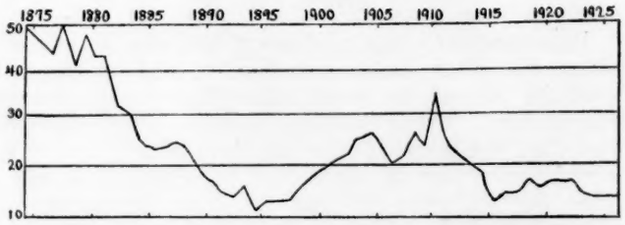

Chart 2.—Incidence of syphilis in the United States Army and Navy from 1875 to 1926.

It may be stated, then, that from the available data on dementia paralytica and tabes a slight decrease or an almost stationary rate is obtained covering the period since the advent of arsphenamine, and that during the same period the mortality from these sources has definitely decreased.

Statistical studies as to the frequency of acute cerebrospinal syphilis before and since arsphenamine are not numerous but are in general agreement. Pette,[16] from a survey of the material at Nonne's clinic, concludes that early neurosyphilis unquestionably became more frequent after the introduction of arsphenamine. In about 50 per cent of cases, cerebrospinal syphilis appeared during the first year, most frequently from two to three months after infection. However, it is to be noted that the cases were insufficiently treated; in only three cases did neurosyphilis of this type develop in spite of treatment. Lauter[17] analyzed neurosyphilis at Strümpell's clinic from 1900 to 1922, including only cases with clinical signs, with the results shown in table 2.

TABLE 2.—*Occurrence of Neurosyphilis*

| | Interval Between Infection and Appearance of Clinical Symptoms | | |

He concluded that, since the introduction of arsphenamine, early involvement of the central nervous system had become more frequent. Marburg [18] reported concerning the relationship between treatment and incubation time in a group of patients with dementia paralytica, those with tabes and those with early cerebrospinal syphilis and showed a shortening of the incubation period in the arsenical treated group. Mattauschek,[19] in 1924, reported an increase in cerebrospinal syphilis and a stationary curve for dementia paralytica. Hyder [20] found the average incubation time for neurosyphilis among a group infected prior to the introduction of arsphenamine to average fifteen years, and among a group infected during the arsphenamine era to be seven years. In respect to the apparent increase of cerebrospinal syphilis and the rather definite shortening of the incubation time of neurosyphilis, most communications based on clinical impressions are in agreement with those based on statistics, but the interpretation of these phenomena are widely divergent. A large number of authors unqualifiedly condemn arsphenamine, but in statistical studies in which the incidence and incubation periods of neurosyphilis were compared following treatment with mercury alone, mercury combined with arsphenamine, arsphenamine alone, or no treatment, have demonstrated that insufficient treatment of any kind in the early stages of the infection predisposes to involvement of the central nervous system.

Stokes and DesBrisay [21] found no marked difference in the absolute incidence of neurosyphilis among cases untreated, mouth treated and inadequately treated by modern methods, but thought that neurosyphilis had a much larger proportionate incidence in the last group. A group of authors too numerous to mention show that with intensive and persistent treatment, regardless of its type in early syphilis, the tendency toward neurosyphilis is diminished. Moore,[22] in a study of eighty-one cases of neurorecurrence, concluded that the condition is practically confined to inadequately treated patients and showed that increase in the amount of treatment, including arsphenamine, reduces the incidence of neurosyphilis. These apparent facts are given added weight when compared with the experimental production of various types of disease by Pearce and Brown [23] using subtherapeutic injections of arsphenamine. Considering the entirely inadequate treatment that the majority of patients with early syphilis receive, and the demonstrated trend of such cases, it is not surprising that there is an increase in the number of neurorecurrences, and that the average incubation period of neurosyphilis has been shortened.

ARSENIC IN OPTIC ATROPHY

An article by Abadie [24] on the evils of arsenic and bismuth in ocular syphilis is one of several articles by prominent writers condemning arsenic in syphilitic disease affecting the eye. The author states that chorioretinitis and optic atrophy have become infinitely more frequent since the introduction of arsphenamine. He states that not only are arsenic and bismuth compounds absolutely powerless to modify the evolution toward blindness but they often precipitate it. He reports shortening of the incubation period, and recommends intravenous injections of mercuric cyanide as the best form of treatment. Arlt [25] of Uhthoff's clinic reports a decrease of optic atrophy since the introduction of arsphenamine and naturally favors its use. All of the fifty-three cases of optic atrophy at this clinic had been inadequately treated early in the disease, and later on they had received mercury almost exclusively. Igersheimer [26] reports no unusual hazard to either the healthy or the diseased eye, but at the same time thinks that the drug is of no particular service in optic atrophy. Zimmerman [27] states that the only true toxic arsphenamine reaction involving the normal eye is a conjunctival hyperemia. There are no clinical or experimental data indicating that arsphenamine unfavorably affects the normal optic nerves or the retina. However, serious consequences may follow the exhibition of arsphenamine in extensively diseased eyes in the form of a Jarisch-Herxheimer reaction.

The aggravation of existing pathologic conditions by arsphenamine can in the majority of cases, as has been repeatedly demonstrated, be avoided by the preliminary use of mercury or bismuth and the iodides. Fehr, quoted by Zimmerman, reported a study of 340 cases treated with a single injection immediately following the introduction of arsphenamine. Of these, thirty-two developed evidence of ocular recurrence, eleven of which were optic neuritis. Moulton [28] reported a case of methyl alcohol blindness cured by the administration of small doses of neoarsphenamine. Stock [29] obtained good results by treating retrobulbar optic neuritis from various causes with arsphenamine. Suker [30] treated four cases of methyl alcohol blindness with arsphenamine and all the patients recovered. It would seem, then, that a deleterious effect on normal eyes or those affected by nonsyphilitic disease has not been demonstrated. Neymann and Singleton,[31] in reporting fifty cases of neurosyphilis, recorded the administration of forty, thirty-two and twenty-four injections of tryparsamide to three patients with optic atrophy, resulting in stationary vision and serologic improvement in two. Transitory amblyopia was noted in 10 per cent of the entire series of cases, with a permanent reduction of vision in three cases. In 152 cases, Stokes and Wilhelm [32] reported 8 per cent visual disturbance with tryparsamide, 5.4 per cent with objective evidence of damage, and in one case a reduction to tubular vision. Lillie [33] and O Leary with Becker [34] reported similar

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results, pointing out that syphilis would in part account for these reactions.

Apparently in this arsenical a hazard exists which is not paralleled by any other salt of arsenic now used in the treatment of syphilis. In the clinic of the University of Pittsburgh from 1923 to 1929 there were received approximately 50,000 cases, and of these 1,917 cases presented ocular syphilis of different types. Twenty were found with optic atrophy. The average interval between infection and examination, where available, was eighteen years. All cases were treated with mercury, iodides and arsphenamine. The average amount of treatment was one eight weeks' course and in only half of the cases are complete notes on the condition of the eyes available after one year's time. Of these, one showed marked improvement serologically and in the perimetric fields. In four no change was noted, and in the remaining cases gradual deterioration developed. No patient was given arsphenamine for the first treatment, either mercury or bismuth with iodides being used to reduce the hazard of Herxheimer reactions.

If these figures demonstrate anything other than that we were unable to control our patients, it is that carefully administered routine treatment including arsphenamine frequently controlled by examination of the eyes is not contraindicated by the presence of an optic atrophy. Lederer [35] reviewed the work of Leber, Wecher, Uhthoff, Hippel, Hirschberg, Igersheimer and Polak, and reported personally on the treatment of five cases of optic atrophy which he treated with foreign protein, sodium nucleinate, arsphenamine, mercury and malaria over a period of from three to four years with improvement in vision and fields in three cases and failure in two. Stargardt,[36] from a study of optic atrophy in tabes and dementia paralytica, concluded that atrophy was secondary to a round cell infiltration of the intracranial portion of the optic nerve and argues the presence of spirochetes as the direct cause in contradistinction to the theory of toxic origin.

From the foregoing and in view of the irregular and incalculable course of the condition, it would be unwise to speak of successful treatment unless arrest or improvement holds for at least two years. Treatment, to be effective, must be early and intensive. As long as inflammation and exudation are associated with the process, one may expect arrest or improvement; but with established atrophic degeneration one must face the fact that scar cannot be replaced by normally functioning tissue. Whether optic atrophy is purely toxic in origin and essentially atrophic in character or due to the presence of the spirochete and inflammatory exudate is of relative unimportance. The question in point is whether or not arsphenamine or any other arsenical used in the therapy of syphilis is prone to precipitate or aggravate optic atrophy. Barring the Herxheimer type of reaction, such possibilities seem rather remote in view of the foregoing, but the question arises as to whether the rapid clearing of exudate may lead to more scarring than would result from the use of mercury, bismuth and the iodides. Should such be the case, acute eye lesions seen early in the course of syphilis and treated with arsphenamine should show this tendency. Baruch [37] reviewed 10,000 cases with an incidence of 3.67 per cent of optic neuritis, all treated intensively with arsphenamine to complete cure in all, and with a secondary atrophy in only two cases. It would seem that while tryparsamide must be used cautiously with reference to pathologic conditions affecting the eyes, the trivalent arsenicals carefully used with due caution are at least not contraindicated in the presence of an optic nerve involvement.

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IS ARSENIC NEUROTROPIC?

Perusal of the literature reveals the misuse of the word neurotropic. A great many perfectly clean-cut cases of Jarisch-Herxheimer reactions are ascribed to neurotropism on the part of arsenic. Neurorecurrences are also credited to the neurotropic effect of arsenic. Practically every neurologic accident has from time to time been considered due to neurotropism of arsenic. Dorland [38] defines neurotropism as "having a chemical affinity for nervous tissues." Therefore, if the term is to be used correctly, it must be limited to conditions in which some particular tissue or organ binds more arsenic than others. Thus, if the peripheral neuritis occasionally seen as a complication of arsenical medication could be shown to be associated with a selective localization of arsenic, an example of neurotropism would be established. Arsphenamine seems to have no selective affinity for the nervous system; in fact, one of the difficulties is to get the drug in contact with the diseased structures in syphilitic involvement of the central nervous system. Ullmann [39] by animal experimentation found only a trace of arsenic in three brains, and none at all in two, in contradistinction to the arsenical content of other tissues, following intramuscular injections of the drug. Similar results are reported by Bornstein [40] and by Morel with Mourinquant.[41] Voegtlin and Smith,[42] using single large doses of arsphenamine, found 1.16 mg. per gram of fresh brain; in the cerebrospinal fluid, 7.21 mg. (normal fluid content is from 0.5 to 1.55) while there was in the spleen 16.83, bile 196.54, liver 16.17, stomach and intestines 19.34 and blood 5.25 mg. per gram of fresh material. Engelman [43] demonstrated that arsenical storage in the brain which, following administration paralleling ordinary therapeutic proceedures, revealed at most only a trace, could be increased only by frequent administration of large doses over a period of several weeks. And still small doses of arsenicals are said to be frequently neurotropic. The point to be made is that all sorts of accidents may complicate arsenical medication of syphilis, but proof does not exist that they are due to neurotropism on the part of arsenic. If it is considered that the small amount of arsenic deposited in the nervous system produces symptoms referable to these tissues, neurotoxic would seem to be the better term.

This paper, dealing with generalities, is perhaps suggestive, but I prefer to think not at all conclusive. It is hoped that it may serve to stimulate research that will be conclusive.

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RESULTS OF VARIOUS OPERATIONS FOR PROLAPSE OF THE UTERUS*

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Of the various operations for prolapse of the uterus, those most used probably are the Watkins-Wertheim, the Mayo vaginal hysterectomy, the Kocher fixation, the modified Gilliam, and various other types of intraperitoneal shortening of the round ligaments combined with vaginal plastic operations. The technic of each has undergone various modifications and is described in detail in the literature. The value of any one of these procedures as a corrective operation is determined largely by the results obtained from its use, by the ability of the surgeon to execute the technic correctly and by its application to the properly selected case.

Masson[1] has stated that the choice of operation depends on several factors. Chiefly these are: the age of the patient, her marital state, the risk of an abdominal or vaginal operation, and the degree of prolapse with its accompanying symptoms. The practice of using an operation as a routine is to be condemned, since it would be obviously too radical in some cases and certainly inadequate in others.

Cystocele and rectocele, which are the accompanying conditions of prolapse, are usually the factors which induce the patient to seek relief. The prolapse of the uterus itself may be symptomless. The associated cystocele usually is in direct proportion to the extent of prolapse. Such conditions also occur in the nulliparous woman and are usually due to congenital or developmental defects in the supporting ligaments, the muscles, and the fascia of the pelvic diaphragm. As the uterus becomes retroverted and descends, in women who have had children the bladder is carried downward, because the uteropubic fascia, which previously supported the bladder in its normal position, is dragged downward on the cervix.

All writers agree that injury produced at the time of childbirth is the most common cause of prolapse and its accompanying disorders. Failure to repair adequately the soft parts at the time of labor or soon thereafter is of course an incidental and related cause of the condition. The atrophy of the pelvic viscera and the loss of tonus of the pelvic muscles after menopause account for the increase in number of cases of prolapse after this period. Prolapse in the nulliparous woman usually occurs after the menopause because of this atrophy of the soft parts in addition to congenital defects. Any procedure, therefore, which is used for the correction of prolapse must be directed to the correction of cystocele or must be supplemented by anterior colporrhaphy, and the pelvic floor must be reconstructed in all cases if cure of the prolapse is to be expected.

The patients are always divided into two main groups: those who are in the child-bearing period, and those who are past the menopause. Practically all gynecologists are in accord regarding the treatment of the first group, which consists in repair of the cervix, of the anterior and posterior vaginal walls and of the perineum, combined with some type of intraperitoneal shortening of the round ligaments. The treatment of the second group is the subject of a great deal of discussion, and many operations have been devised and modified. In our estimation comparatively few types of operations are necessary for the adequate treatment of these cases. However, an occasional case may present certain complicating features which may be better cared for by a method not mentioned here. For instance, it may be best to use such an operation as subtotal or total abdominal hysterectomy followed by implantation of the cervix or vaginal vault in the abdominal wall, or the Le Fort operation in which the vagina is obliterated. Only a small number of the total group will require such procedures for prolapse, and for this reason consideration of them is omitted here.

There is no accepted standard for the classification of various degrees of prolapse. Certain gynecologists have designated the extent of the prolapse as first, second and third degrees, but this classification has not been generally accepted. It would seem that since in recent years it has become the custom to grade lesions on a basis of 1 (slight) to 4 (extreme), it would be logical to grade uterine prolapse and its accompanying disorders on the same basis. A division of the cases according to this method contributes to a better understanding of the extent of the lesion and aids one in selecting the type of treatment which should be applied. All cases of retroversion and only slight descensus of the uterus should be classified in group 1; cases in which the cervix is presenting at the introitus (not cervical elongation), in group 2; cases in which the cervix projects partly from the introitus, in group 3, and cases in which there is complete prolapse of the cervix and uterus, in group 4. The extent of cystocele and rectocele, and of retroversion, could also be graded on a basis of 1 to 4.

The results submitted here are all graded according to this proposed classification. The patients were treated, by various members of the surgical staff of the Mayo Clinic, by the Mayo vaginal hysterectomy, the Kocher type of abdominal fixation, the Watkins-Wertheim interposition operation, and the modified Gilliam technic or various other methods of intraperitoneal shortening of the round ligaments.

The data were obtained from questionnaires sent to 819 patients, 83.5 per cent of 980 such patients treated at the Mayo Clinic from 1920 to 1928 inclusive. Therefore, unless a patient was treated two years or more before the time when the questionnaire was sent, her case is not included. The average age of the patients who underwent vaginal hysterectomy was 54 years; the Kocher operation, 52 years; the Watkins-Wertheim operation, 49 years; the modified Gilliam operation, 33 years, and intraperitoneal shortening, 33 years. The average age of patients of the entire group was 51 years. This average is practically identical with the figures given in the literature. Analysis of the figures by half decades of life reveals that the largest number of patients who are past the menopause and who seek relief are between the ages of 45 and 60 years and that the greatest number who are in the child-bearing period are between the ages of 25 and 35 years. The incidence of prolapse, as regards the number of children born, is important, as is shown in table 1. The largest number of children were borne by those patients who were treated by the method of vaginal hysterectomy, and the largest number (seventeen) of nulliparous women of the entire series were treated by this method.

* From the Division of Surgery and the Division of Medicine, the Mayo Clinic.
* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.
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ASSOCIATED OPERATIONS

The number and proportion of operations for conditions associated with uterine prolapse are shown in table 2. It will be noted that perineorrhaphy was performed in a large proportion of cases. The largest number of vaginal plastic procedures occurred in association with the modified Gilliam operation and the other types of intraperitoneal shortening. Further reference to these operations will be made in the consideration of each operation.

TABLE 1.—*Record of Child Bearing of Women who Underwent Operations for Prolapse of the Uterus, 1920 to 1928*

	Operations				
Children Born	Vaginal Hysterectomy	Kocher	Watkins-Wertheim	Modified Gilliam	Intraperitoneal Shortening of Round Ligaments
None	17	4	..	10	5
1	59	18	5	11	5
2	95	15	11	21	12
3	106	14	12	15	7
4	83	10	5	6	3
5	57	5	14	4	1
6	44	6	4	2	3
7	33	4	2	1	..
8	27	1	1	..	..
9	22	..	..	..	..
10	10	..	3	..	..
11	11	1	1	..	..
12	6	..	1	..	..
13	5	..	..	..	..
14	1	..	..	..	..
Total	576	78	59	70	36
Average*	4.41	3.22	4.27	2.68	2.74

* Average number of children for each woman, nulliparas excluded from calculation.

TABLE 2.—*Surgical Procedures Carried Out in Association with Operations for Prolapse of the Uterus, 1920 to 1928*

	Vaginal Hysterectomy, 576 Cases		Kocher, 78 Cases		Watkins-Wertheim, 59 Cases		Modified Gilliam, 70 Cases		Intraperitoneal Shortening of Round Ligaments, 36 Cases	
Associated Procedures	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent	Operations	Per Cent
Perineorrhaphy	547	94.96	29	37.17	59	100.00	42	60.00	18	50.00
Cervical amputation	..	.....	11	14.10	13	22.03	19	27.14	17	47.22
Cautery to cervix	..	.....	5	6.41	1	1.69	10	14.28	1	2.77
Dilation and curettage	6	1.04	5	6.41	1	1.69	15	21.42	6	16.66
Myomectomy	..	.....	11	14.10	..	.....	5	7.14	3	8.33
Trachelorrhaphy	..	.....	..	.....	..	.....	8	11.42	4	11.11
Anterior colporrhaphy	..	.....	5	6.41	..	.....	10	14.28	5	13.88
Removal of cysts from ovary	2	0.34	1	1.28	..	.....	4	5.71	2	5.55
Bilateral salpingo-oophorectomy	3	0.52	4	5.12	..	.....	..	.....	2	5.55
Bilateral oophorectomy with single salpingectomy	1	0.17	1	1.28	..	.....	1	1.42	2	5.55
Single oophorectomy with bilateral salpingectomy	1	0.17	2	2.56	..	.....	..	.....	1	2.77
Single oophorectomy and salpingectomy	10	1.73	8	10.25	..	.....	4	5.71	1	2.77
Bilateral oophorectomy	2	0.34	..	.....	..	.....	..	.....	..	.....
Single oophorectomy	1	0.17	2	2.56	..	.....	1	1.42	4	11.11
Bilateral salpingectomy	2	0.34	2	2.56	..	.....	..	.....	..	.....
Single salpingectomy	3	0.52	..	.....	1	1.69	1	1.42	3	8.33

MAYO VAGINAL HYSTERECTOMY WITH AND WITHOUT PERINEORRHAPHY

Of a total of 696 patients who underwent vaginal hysterectomy, 576 (82.75 per cent) were heard from. The patients who were entirely free from symptoms were classified as having obtained good results, and those who were only partially relieved, as having obtained fair results. In the latter group the patients all stated that their condition had been tremendously improved by the operation but that they continued to have occasional attacks of cystitis. Good results occurred in 76.74 per cent, fair results in 20.48 per cent; thus satisfactory results were obtained in 97.22 per cent (table 3). In chart 1 are represented graphically the degrees of prolapse on a basis of 1 to 4, by half decades of life ranging from ages 25 to 75 years; the results are expressed as averages in percentage for each half decade of life. There were sixteen failures or poor results in 2.78 per cent of the patients. All of these had prolapse and cystocele graded 3 or 4 preoperatively, and complained of recurring prolapse of the bladder within a few months after the operation. Of the 696 patients, 14 died, a hospital mortality of 2.01 per cent (table 3). Studied by half decades, the largest number of cases are seen to have occurred between the ages of 55 and 60 years, with 93 per cent occurring at or beyond the menopause. The percentage of satisfactory results is practically the same for each half decade; it ranges between 94.02 and 100 per cent.

TABLE 3.—*Mortality in Hospital and End-Results of Operation for Prolapse of the Uterus, 1920 to 1928*

	Entire Series				Questionnaires Answered				
	Mortality in Hospital				End-Results				
Type of Operation	Cases	Cases	Per Cent	Average Age, Years	Cases	Per Cent	Good	Fair	Poor
Vaginal hysterectomy	696	14	2.01	54.06	576	82.75	76.74	20.48	2.78
Kocher	92	..	....	52.00	78	84.78	66.67	28.20	5.12
Watkins-Wertheim	71	..	....	49.11	59	83.09	69.49	27.12	3.39
Modified Gilliam	77	1	1.29	33.07	70	90.90	60.00	28.57	11.43
Intraperitoneal shortening of round ligaments	44	1	2.27	33.61	36	81.81	63.89	27.78	8.33
Total	980	16	1.62	51.16	819	83.57	73.26	22.71	4.03

Perineorrhaphy was performed in all cases except when the perineum had been repaired previously elsewhere and secondary repair was not necessary (chart 1).

KOCHER OPERATION

Of a total of ninety-two patients treated by the Kocher fixation method, seventy-eight (84.78 per cent) were traced (chart 2). Good results occurred in 66.67 and fair results in 28.20 per cent; thus satisfactory results occurred in 94.87 per cent. There were poor results in four cases (5.12 per cent). Three of the patients had undergone previous vaginal plastic operations combined with internal shortening of the round ligaments for cystocele and rectocele graded 2 and 3, with prolapse graded 1. Symptoms of prolapse, with irritability of the bladder, recurred within a year in three cases. One patient was completely relieved for one year but recurrence developed following repair of postoperative abdominal hernia. The probability of cure of each of the four patients who had recurrence was doubtful at the time of operation, because they were all obese, the fascia of the abdominal walls was very thin and the rectus muscles were separated. There were no deaths in the hospital. The average age of the patients was 52 years; the age of the youngest was 30 and of the oldest, 70 years (chart 2).

WATKINS-WERTHEIM OPERATION

Seventy-one patients were treated by the Watkins-Wertheim interposition operation. Replies to inquiries (chart 3) were received from fifty-nine (83.09 per

cent). The average age of the patients in this group was 49 years. Fifty per cent of the patients were between the ages of 40 and 55 years, with the largest number between 45 and 50 years. There were no deaths in the hospital. Good results occurred in 69.49 per cent and fair results in 27.12 per cent; thus satisfactory results occurred in 96.61 per cent. The majority of the patients had prolapse graded 2 and 3, with the greatest number graded 2. The degree of cystocele averaged between grades 2 and 3. The results for cystocele and prolapse correspond. Poor results were recorded in two cases (3.39 per cent). Each of these patients was aged 54 years. One patient had borne six children and the other, two. Both had cystocele and prolapse graded 2. Recurrence of the prolapse and vesical trouble developed within a few weeks after operation in one case and seven months after operation in the other.

MODIFIED GILLIAM OPERATION

Seventy-seven patients were treated in accordance with the modified Gilliam technic of internal shortening of the round ligaments. Replies (chart 4) were received from seventy (90.9 per cent). The operation was combined with perineorrhaphy in forty-two of the seventy cases (60 per cent), with cervical amputation of the Sturmdorf type in nineteen (27.14 per cent), with cauterization of the cervix in ten (14.28 per cent), with dilation and curettage in fifteen (21.42 per cent), and with anterior colporrhaphy in ten (14.28 per cent). Retroversion was associated with the main condition in practically all cases, and the degree of retroversion usually corresponded with the degree of prolapse. Good results occurred in 60 per cent, and fair results in 28.57 per cent; thus satisfactory results occurred in 88.57 per cent. There were poor results in eight cases (11.43 per cent). Fifty-six per cent of the patients in this group were between the ages of 25 and 35 years. Two patients were aged more than 55 years and cure resulted in each instance. The average age of the patients was 33 years. There was one death in the seventy-seven cases, a mortality of 1.29 per cent. In the cases in which failure resulted, two patients had been pregnant since operation and two had been pregnant twice. The pregnancies were all followed by recurrence of prolapse and cystocele, associated with a bearing-down sensation, frequency, and burning on urination. One patient had recurrence of the prolapse and a bearing-down sensation five years after operation. In three cases recurrence developed within three months after operation.

INTRAPERITONEAL SHORTENING OF THE ROUND LIGAMENTS FOR PROLAPSE

Forty-four patients were treated by a method of intraperitoneal shortening of the round ligaments other than that known as the modified Gilliam type of operation, combined with a vaginal plastic operation. Of this number, replies (chart 5) were received from thirty-six (81.81 per cent). There was one death, a mortality of 2.27 per cent in the forty-four cases. The average age was 33 years. Good results were obtained in 63.89 per cent and fair results in 27.78 per cent; thus, satisfactory results were obtained in 91.67 per cent. The greatest number of patients had prolapse graded 2, but some patients had prolapse graded 3. Five per cent of the patients were younger than 25 years; 22 per cent were between the ages of 25 and 30 years, 28 per cent between the ages of 30 and 35 years, 32 per cent between the ages of 35 and 40 years, and 11 per cent between the ages of 40 and 45 years. No patient was more than 45 years of age. In eighteen (50 per cent) of the thirty-six cases the main operation was combined with perineorrhaphy; in seventeen (47.22 per cent) with amputation of the cervix of the Sturmdorf type; in four (11.11 per cent) with repair of the cervix, and in five (13.88 per cent) with repair of cystocele. There were poor results in three cases (8.33 per cent). In one case a Baldy-Webster type of internal shortening of the round ligaments was performed together with a Sturmdorf type of amputation of the cervix and perineorrhaphy. This patient was not benefited by the operation. In one case a Baldy-Webster type of internal shortening of the round ligaments was performed, combined with trachelorrhaphy and perineorrhaphy, Sturmdorf amputation of the cervix and right salpingectomy. This patient was well for three years when pregnancy occurred, which was followed by complete prolapse. The third patient, a nullipara, was aged 31 years, with prolapse graded 1. Symptoms recurred within a few months.

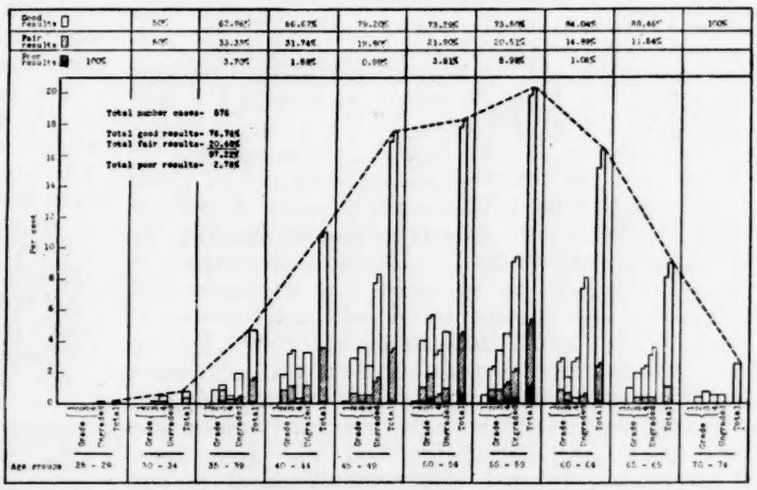

Chart 1.—Mayo vaginal hysterectomy with and without (1) perineorrhaphy.

COMMENT

In this series of 980 patients surgically treated for uterine prolapse and associated conditions, as has been said, answers were received to questionnaires from 819 (83.57 per cent). One hundred and six (12.94 per cent) of the 819 cases occurred in women in the child-bearing period and 713 (87 per cent) occurred beyond the menopause. It is apparent, therefore, that, if these patients do not have sufficient symptoms from prolapse or accompanying cystocele to induce them to seek relief before the menopause, relaxation of the pelvic support and atrophy of the tissues increases their discomfort considerably. Acquired prolapse itself may be symptomless, since it is not uncommon to examine patients with prolapse of the uterus graded 2 to 3 who have no complaints referable to the prolapse. The most distressing symptoms usually are due to the cystocele, which is usually associated with the prolapse. The greater the extent of relaxation of the perineum, the greater will be the extent of prolapse, because the perineum tends to support the uterus within the vagina.

The milder grades of cystocele and rectocele are seen in the child-bearing period associated with a low grade of prolapse and retroversion.

The choice of operation to secure the best results as shown in this study depends on the age, the marital state, and the grade of cystocele and prolapse, and must be one that will relieve the cystocele. If patients have passed the menopause this is satisfactorily accomplished by removing the uterus vaginally, and utilizing the round and broad ligaments to construct a new support for the bladder, as in the Mayo vaginal hysterectomy. In the Mayo Clinic it is the operation of choice when the cystocele and prolapse are of grade 3 or 4. If it is used for the lesser grades of prolapse there is considerable difficulty in approximating the broad ligaments, and this predisposes to recurrence of the cystocele. If the upper edge of the tissue that encloses the approximated broad and round ligaments is firmly sutured to the fascia of the pubic rami, leaving just sufficient room for the urethra, the recurrences will be reduced to a minimum. It is an extremely safe procedure and should be used in elderly women who have passed the menopause and who have large cystoceles unassociated with intra-abdominal lesions. Repair of the pelvic floor was done in 547 (94.96 per cent) of the 576 patients. It was not performed in a small group because the perineums had been repaired previously elsewhere and the repair seemed adequate at the time of the operation at the clinic.

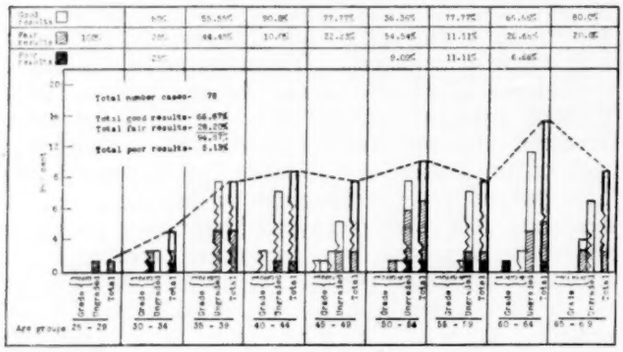

Chart 2.—Kocher operation for prolapse with (>) and without perineorrhaphy.

If the prolapse is of grade 1 or 2, if there is an associated cystocele graded 2 or higher and if it occurs in a patient who has passed the menopause and whose uterus is of normal size, the Watkins-Wertheim interposition operation may be employed. The percentage of satisfactory results obtained at the clinic corresponds closely to that reported by others. Johnson [2] reported thirty-two cases in which cure was obtained in twenty-seven (84 per cent), partial cure in two, and failure in three. Bullard,[3] in an analysis of the treatment of prolapse of the uterus at the Woman's Hospital, New York, reported satisfactory results in 96 per cent of the patients treated by this method. Clute [4] recently reported satisfactory results in 90.56 per cent following personal examination of the patients. Failures that occur are caused by applying the operation in cases in which the patients have severe degrees of prolapse, or an atrophic uterus; this may ultimately result in complete prolapse of the fundus of the uterus, bladder and vagina. The prolapse can be partially overcome by shortening the uterosacral ligaments before the uterus is sutured beneath the bladder. We prefer to confine the procedure to cases with prolapse graded 1 to 2 associated with large cystocele. Repair of the perineum aids in holding the cervix in the posterior position; this was performed in all cases in this group.

For older women who present marked prolapse of long duration with cystocele and rectocele, and who constitute poor surgical risks for extensive operations, the Kocher fixation procedure is excellent. Of the twenty-nine cases in which perineorrhaphy was performed, good results were obtained in 70 per cent, and in those in which perineorrhaphy was not performed good results occurred in 61.3 per cent. The Kocher fixation operation should, therefore, always be supplemented with perineorrhaphy at the time of the operation or soon thereafter unless adequate repair of the pelvic floor has been previously done. In a few of the cases which are recorded in the group of those with good results but in which perineorrhaphy was not done, the perineum had been repaired elsewhere. If there is not too much atrophy of the tissues, and the abdominal wall is firm, perineorrhaphy may not be necessary.

Of the 106 patients in the child-bearing period, seventy-seven were treated by the modified Gilliam type of internal shortening of the round ligaments combined with vaginal plastic operations. Fifty-six per cent were aged between 25 and 35 years. The degree of prolapse, as would be expected, was mostly of grades 1 and 2 with a corresponding degree of retroversion. Nine per cent of all patients with unsatisfactory results were aged between 25 and 35 years. In four of the cases in which the results were classified as failures the patients had recurrence of prolapse of the bladder and uterus following subsequent pregnancies. Another patient was completely cured of her symptoms for five years before recurrence developed. Three patients had recurrence of the prolapse and of the cystocele within three months; one patient had undergone a ventral suspension elsewhere, and the other two patients had remained comparatively free from symptoms by the use of a pessary.

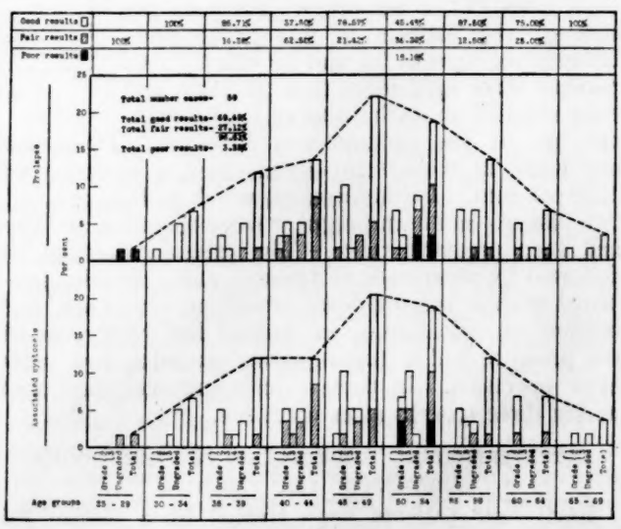

Chart 3.—Watkins-Wertheim operation.

Forty-four patients in the child-bearing period were treated by various other types of intraperitoneal short-

2. Johnson, F. W.: End-Results in the Interposition Operation for the Cure of Prolapsus Uteri and Cystocele, Surg. Gynec. Obst. **42**: 527-528 (April) 1926.

3. Bullard, E. A.: A Study of the End-Results of Operations for Uterine Prolapse at the Woman's Hospital, 1915-1925, Am. J. Obst. & Gynec. **11**: 623-630 (May) 1926.

4. Clute, H. M.: Cystocele at Middle Age Treated by the Interposition Operation, New England J. Med. **199**: 994-997 (Nov. 15) 1928.

ening of the round ligaments combined with vaginal plastic operations. Sixty-one per cent of these patients were between 30 and 40 years of age. The degree of prolapse was graded 2 in practically all cases. There were three failures (8.33 per cent). Two of the patients were treated by a Baldy-Webster type of

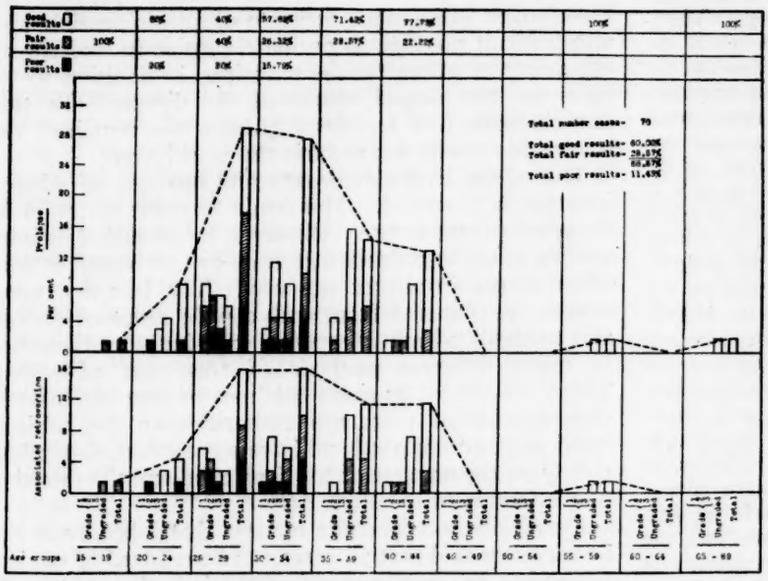

Chart 4.—Gilliam operation.

internal shortening of the round ligaments, low amputation of the cervix, perineorrhaphy, and unilateral salpingectomy. Anatomically there was no recurrence after one of the operations but the same symptoms prevailed. The other patient was completely cured for three years, when recurrence occurred following pregnancy. The third patient, a nullipara, was treated by Long's method of intraperitoneal shortening of the round ligaments. Vaginal plastic operations were not performed. Prolapse, graded 2, developed soon after the patient left the hospital; evidently this was a case of congenital prolapse.

The results in the group of cases in which the modified Gilliam operation was used were studied separately from those of other types of intraperitoneal shortening of the ligaments combined with vaginal plastic operations because we feel that the Gilliam operation is more compatible with pregnancy. The incidence of pregnancy in the two groups has not been studied. It is seen by comparing the two groups that the operative results for prolapse are essentially the same in the two, but that of those who underwent the Gilliam operation the greatest number were in the half decade of life between 25 and 30 years, whereas of those who underwent other types of intraperitoneal shortening of the ligaments the greatest number was in the half decade between 35 and 40 years.

SUMMARY AND CONCLUSIONS

The series consisted of 980 patients surgically treated for prolapse of the uterus. Of this number, replies from questionnaires were received from 819 (83.56 per cent). There were sixteen deaths, a mortality of 1.62 per cent in the 980 cases. Satisfactory results occurred in 95.97 per cent of the entire series. Five types of operation were employed.

The modified Gilliam technic of internal shortening of the round ligaments comprised one group, and various other types of internal shortening of the round ligaments combined with vaginal plastic operations comprised the second group of operations used for patients of the child-bearing period. For patients who had passed the menopause, the Mayo vaginal type of hysterectomy, the Watkins-Wertheim interposition and the Kocher abdominal fixation operations were employed. From the results it is shown that the modified Gilliam operation, combined with vaginal plastic procedures, is the operation of choice among all types of internal shortening of the round ligaments when other pelvic operation is not indicated. Satisfactory results were obtained in 88.57 per cent in which the Gilliam technic was used.

The Kocher operation is reserved for that group of patients who are past the menopause, senile, and constitute poor surgical risks and for those who previously have undergone hysterectomy, with prolapse of the cervical stump. Satisfactory results were obtained in 94.87 per cent of the cases in which it was used.

If the uterus is of normal size and there is a mild degree of prolapse, graded 1 or 2, with large cystocele and the patient has passed the menopause, the Watkins-Wertheim interposition operation is successfully employed. Satisfactory results were obtained in 96.61 per cent of the cases in which the operation was used.

When the prolapse is of marked degree and is associated with large cystoceles, and the women are past the menopause, the Mayo vaginal type of hysterectomy is the operation of choice. It was

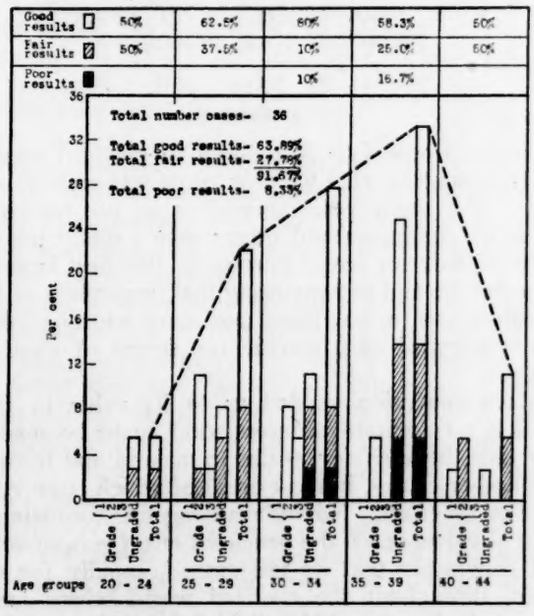

Chart 5.—Intraperitoneal shortening for prolapse.

employed in 81 per cent of the patients who had passed the menopause, with satisfactory results in 97.22 per cent.

ABSTRACT OF DISCUSSION

DR. CARL HENRY DAVIS, Milwaukee: I wish to congratulate the surgeons at the Mayo Clinic on having satisfied 95 per cent of their patients who have this type of condition. The question of grading the descensus of the uterus into 1, 2, 3 and 4, is one that will encounter considerable debate. Many

of us think of grade 1 when the cervix comes to the introitus, and consider the large group which the author would put in the proposed grade 1 as in a group in which there is so much normal variation due to position of the bladder and the like that it need not be considered as a degree of prolapse. In the consideration of the cases treated by the modified Gilliam operation, which I believe at the Mayo Clinic is the Simpson subfascial type of shortening, and the other intraperitoneal operations, it would be interesting to know whether or not the uterosacral ligaments were shortened in the cases in which the results were not satisfactory. If the cervix comes down to the introitus, I believe that uterosacral shortening is an important part of the operation. Experience with pessaries should teach that the round ligaments after all are only guy ropes and that holding up the uterus is to a great degree dependent on the uterosacral ligaments. In the cases with ventral fixation, it is possible that some of the poor results were in a group in which there is a ventral fixation without a previous repair of a large cystocele. It is not always possible because of the patient's condition to repair the cystocele but whenever possible one should choose some type of vaginal operation, or the bladder should be advanced before the uterus is fixed to the abdominal wall. My results with vaginal hysterectomy and the overlapping of the broad ligaments as used at the Mayo Clinic have been very satisfactory. I have had no experience with recurrence of cystocele and doubt its recurrence if the broad ligaments are attached high up under the urethra. However, in watching various surgeons do this operation, I have noticed that there is not a uniformity of care in fixing the broad ligaments high under the urethra. I do not believe that the Watkins-Wertheim operation need be ruled out completely in the cases presenting a third degree prolapse. It is, however, to be ruled out except in the cases in which there is a uterus of normal size that is not diseased.

THE TREATMENT OF MALARIA

WITH SOME REFERENCE TO RECENTLY PROMOTED NEW REMEDIES *

C. C. BASS, M.D.
NEW ORLEANS

Cinchona was first introduced to civilized man for the treatment of what we now know was malaria about 1640. For many years thereafter its use was in the hands of charlatans and others who exploited it as a secret remedy for selfish purposes. Its effect in malaria is so definite and so convincing that, regardless of these circumstances, it was more and more widely used and finally accepted as a specific for fevers of almost all kinds.

Much confusion existed as to its value in fevers because no accurate differentiation could be made, at that time, between fevers due to malaria and those due to all other causes, in most or all of which cinchona has little or no effect. Notwithstanding this confusion and other disadvantages, the beneficial effect was so definite and convincing that its use spread, rapidly for those times, throughout the civilized world where malaria prevailed. Torti, in 1753, divided fevers into those that are cured by the bark and those that are not. We now know that this was a somewhat inaccurate, but at that time the best available, method of differentiating malarial fevers from fevers due to other causes.

The isolation of quinine from cinchona bark by Pelletier and Coventou, in 1820, marked another advance in the treatment of malaria. This has proved to be the most effective against malaria of any of the alkaloids of cinchona. Greater accuracy in dosage was a most important advantage of quinine over "the bark." Because of this and other advantages, quinine has been the alkaloid generally used for malaria up to this time.

Later the discovery of the malaria parasite by Laveran, in 1880, made accurate diagnosis possible and also made it possible to evaluate quinine in malaria by observing its effect on the parasites, in addition to its effect on the clinical course of the disease. To this day cinchona first and later quinine has remained the sovereign remedy for malaria the world over.

The widest range of dosage and methods of administration is practiced. This leads to great variation in the results from its use. However, it has such a definite specific effect in malaria that more or less benefit results from its use in almost any way. The fact that good results are obtained from such a wide range of dosage and methods of administration explains why there are so many different methods of treatment advocated. There are almost as many methods of treating malaria with quinine as there are authorities on the subject. Most of them are good; all have some effect, depending chiefly on the amount of the drug used and the duration of the treatment.

Quinine is so specific in malaria that I believe it can be correctly said that all cases can be relieved of clinical symptoms and finally cured of the infection with sufficient doses for a sufficient length of time, with the possible exception of severe cases in which too great damage has already occurred before the effect of the remedy can be obtained. Such cases are extremely rare. They are so rare as to permit an authority with the large experience of Major J. A. Sinton [1] to say only recently that among more than 1,500 patients suffering from benign tertian malaria he has not found a single case of quinine resistance, although many of them arrived with histories of having this condition; nor did he see relapses occur during the course of quinine treatment.

Quinine as a remedy for malaria has its drawbacks and objectionable features notwithstanding the fact that it is practically 100 per cent effective. Among the more important objections are more or less discomfort which adequate therapeutic doses cause in a good many persons; great variation in its general effect and in its antimalarial effect in different individuals, necessitating unnecessarily large doses in many; and the length of time required to cure the infection in many cases, necessitating unnecessarily long treatment in many. The latter would not be so bad if it were not for the fact that there is no method now known whereby the length of treatment that will be required to cure the infection in any given case can be determined in advance. In one case only a few days of quinine treatment may be sufficient, in another a month or two may be necessary, and in still another even as long as three months of continuous quinine treatment may be necessary.

To make it still worse, there is no method of examination that will tell whether the patient is cured of his infection or not. The fact that all clinical symptoms stop means nothing in this regard; neither does a negative blood examination. A patient who has been under treatment may have no clinical symptoms whatever, and his blood may be negative for malaria parasites, and still he may relapse within from a few days

* From the Department of Medicine, Tulane University School of Medicine.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

1. Sinton, J. A.: Far East. A. Trop. Med., Tr. Seventh Cong., 1927, 2: 599-867, 1928.

to a few weeks or months with typical symptoms and many parasites in his blood.

Since there is no way of telling in advance the length of treatment that will be required in any given case to cure the infection entirely or of telling when this result has been accomplished, it is necessary to give to all patients quinine treatment over a sufficiently long period of time to cure a high percentage of cases. There is great difference of opinion as to the proper length of time. Eight weeks of continuous quinine treatment is considered by many as the proper length of treatment for routine cases. This cures the infection in almost 100 per cent of cases of the estivo-autumnal type and perhaps less than 90 per cent of the tertian and the quartan type.

There have been literally hundreds of remedies besides quinine advocated and promoted for malaria. It would be far beyond the scope of this paper even to attempt to list them. At one time or another most of the drugs used in the treatment of other diseases have been advocated for malaria, in many instances followed at first by enthusiastic endorsement.

Much of the erroneous belief in worthless remedies for malaria has resulted from overenthusiastic, inaccurate observations, associated especially with inaccurate diagnosis. A certain diagnosis of malaria cannot be made except on the presence of malaria plasmodia in the blood. Sometimes the blood examination, if made, is trusted to incompetent technicians or to others whose diagnoses are relied on in evaluating the new remedy under consideration. Most of the endorsement and advocacy of worthless remedies for malaria, however, are based on inaccurate diagnosis of cases without blood examination. While large experience may enable one to guess the diagnosis of malaria correctly in many cases, such guesswork by the best of guessers is not correct frequently enough to serve as a basis for judging the antimalarial value of unproved remedies.

Notwithstanding the enthusiasm with which many different remedies besides quinine have been advocated from time to time, all of them have gone the same way, into disuse, with the exception of certain new ones which have not been in use long enough to see what their outcome will be. I will refer briefly to two of these belonging to the arsenical group and, somewhat more at length, to an interesting new remedy, plasmochin, first introduced in 1926.

VALUE OF ARSENICALS

Arsenic in different forms has been used for malaria for a long time, usually in combination with quinine, the great importance of which was overlooked or underestimated in evaluating the arsenic. The long duration of the opinion that arsenic in one form or another has some beneficial effect on malaria would make it seem highly probable that there is some basis for the belief. Solution of potassium arsenite has long been used, as have also other forms, usually combined with quinine. Although perhaps one cannot say that arsenic in these forms has no effect, it can be said that what little effect it may have is insignificant as compared with that of quinine.

More recently arsphenamine and neoarsphenamine have been used quite extensively in some localities. Central American physicians use it more than others. The use of these preparations as remedies for malaria seems to be more closely related to the appeal for intravenous therapy than to the cure of malaria. The very fact that they are given intravenously gives them a strong appeal to patients and, I am sorry to say, to many physicians.

Intravenous administration of fluids of almost any kind has some beneficial effect in malaria and it is hard to tell whether the slight effect from arsphenamine and neoarsphenamine is due to the arsenical or merely to the damage to the blood by the intravenous fluid. Any fluid, even salt solution, given directly into the blood stream damages the blood cells to some extent and tends to make them an unfavorable soil for the malaria parasites to grow in. The addition of even small quantities of salt solution to blood in the test tube affects it in such a way that malaria parasites will not grow but soon die in it. If, on the other hand, to such blood a little dextrose but no salt solution is added, malaria parasites live and grow in it. However, the beneficial effect of arsphenamine and neoarsphenamine resulting from intravenous administration (and not from any specific action) is so slight and so variable and this method of treatment of malaria is so unnecessary that it is rapidly growing into disuse. It cannot be denied, however, that, when violent reactions are produced by intravenous medication with arsphenamine or other drugs and sufficient damage is done to the blood, malaria parasites are damaged also, and, in fact, sometimes, although rarely, complete cure results.

Acetarsone, another arsenical given either intravenously or orally, has had a rather extensive trial in malaria. Of all the newer arsenicals, perhaps this one stands out above all others for variation in the susceptibility of different individuals to its toxic effect. One individual shows little or no harmful effect of full doses and another is greatly harmed or even killed by much smaller doses. The violent reactions that occur in many cases cannot be foretold, and the symptoms produced by the inevitable injury to the liver are especially indefinite. They do, however, tend to benefit malaria by making the blood cells unfavorable soil for the malaria parasites to live and grow in. But danger and harm produced by acetarsone, in addition to the fact that its antimalarial effect is negligible as compared with that of quinine, have prevented extensive use of it. It is a fact, however, that malaria no doubt may sometimes be cured with acetarsone. There is no likelihood that its use will increase.

Sinton,[2] in a careful observation of twenty-five cases of chronic benign tertian malaria treated with acetarsone and after reviewing the work of others last year, concluded that the intravenous injection of sodium acetarsone in varying doses up to a total of 4 Gm. in five days has produced a true cure in only a small percentage of cases and has not confirmed the encouraging results claimed by other workers in this respect. However, intravenous injection of 1 Gm. of sodium acetarsone will cause the disappearance of *Plasmodium vivax* from the peripheral blood and a clinical cure in the majority of cases.

TREATMENT WITH PLASMOCHIN

A more interesting "specific remedy" for malaria, plasmochin, was promoted by Muehlens[3] first in 1926. Plasmochin is a synthetic derivative of quinoline and is somewhat indefinitely stated to be an alkyl-amino-6-methoxyquinoline salt. The resemblance of its chemical

2. Sinton, J. A.: Studies in Malaria with Special Reference to Treatment: The Intravenous Injection of Sodium Stovarsal in the Treatment of Benign Tertian Malaria, Indian J. M. Research **15**: 287-299 (Oct.) 1927.

3. Muehlens, P.: Treatment of Natural Malaria with Plasmochin, Arch. f. Schiffs- u. Tropen-Hyg. supp. **30**: 325-335, 1926.

formula to that of the quinine group suggested the possibility of its having an effect in malaria. It was first tried on bird malaria by Roehl.[4] Doses of 1 cc. of a 1 : 50,000 solution for each 20 Gm. of body weight were found to prolong definitely the incubation period of malaria following inoculation in birds.

Muehlens [3] reported that rapid abatement of symptoms and disappearance of parasites occurred in tertian malaria but that in the subtertian form the effect was less marked on symptoms and asexual parasites. However, the number of gametes rapidly declined and all soon disappeared. This claim of selective action against gametes, especially crescents, sounded a receptive note and greatly increased interest in this new drug. Emphasis has been laid on it by most of the large number of enthusiastic endorsers of the remedy ever since. They sometimes seem to fail to realize that crescents ever disappeared before without plasmochin. No new remedy for malaria has ever been so successfully promoted, so widely used or so enthusiastically endorsed in so short a time. While adverse reports have appeared from time to time, the favorable reports are much more numerous. Although it is only a little more than three years since plasmochin was first introduced, there is already a voluminous literature on its use, consisting largely of clinical reports and observations.

Soon after its first introduction it was apparent that, although plasmochin alone would give clinical cures of simple tertian malaria, it had little effect on estivo-autumnal malaria except for the claim that it had some mysterious specific ability to destroy crescents. The situation was happily met by combining quinine with the plasmochin in the form of so-called plasmochin compound, now put out in the form of tablets containing 0.01 Gm. of plasmochin and 0.125 Gm. of quinine sulphate. The directions in the latest circular of the manufacturers advise giving two tablets three times daily. This corresponds to 0.75 Gm., or about 12 grains, of quinine daily. Practically all plasmochin used in clinical tests for the last year or two has consisted of this combination with quinine. The results are bound to be good in most cases for they would be from the same amount of quinine without the plasmochin. There is a tendency to lose sight of the quinine and to attribute the results to plasmochin. As a matter of fact, corresponding results are produced by the same amount of quinine without the plasmochin. But the very fact that clinical and parasitic cures are obtained from plasmochin alone in some cases of tertian malaria would justify the belief that the antimalarial effect of the two drugs combined may be somewhat greater than that of either alone in this type of malaria and possibly in others. However, it is difficult to measure this increased effect for the reason that few or no cases of tertian malaria can be found in which 12 grains of quinine daily does not promptly control the clinical symptoms. The effect of plasmochin compound in malaria should not be attributed to plasmochin primarily. To the quinine should be attributed such effect as results from quinine without the plasmochin. If this correct line of evaluation is followed, there will not be so much effect left for the plasmochin.

Plasmochin has a high toxicity and this seems to vary greatly in different individuals. The toxic symptoms that have been noted consist chiefly of cyanosis, pallor, nausea, gastric pain and distress, headache, dizziness, epistaxis, hemoglobinuria and weakness. Such unforseeable individual results and sometimes grave symptoms may arise without warning. Brosius [5] reported ten, or 16⅔ per cent, of sixty patients taking as much as 0.06 Gm. daily as suffering from cyanosis, hemoglobinuria, nausea, headache or relapse. Two deaths occurred in about 200 patients treated, in neither of which did the autopsy reports absolve plasmochin from blame, if not from being the definite cause.

In this report, other members of the medical staff of the United Fruit Company reported their experiences with plasmochin. Cordes [6] says: "In occasional cases without previous warning very grave symptoms arise. It is only since we have used plasmochin that these accidents have repeatedly occurred with striking similarity." Phelps,[7] who had some undesirable reactions in eleven of nineteen cases, stated it as his belief that "it is a dangerous drug with unforseeable individual results." Macphail,[8] on the other hand, from his experience with a considerable number of cases, considered it safe under very ordinary supervision.

In a group of eighty-six patients given plasmochin, either with or without quinine, in doses of 0.08 Gm. daily, Sinton and Bird [9] found it necessary to discontinue the treatment on account of toxicity in five cases. A 71 per cent relapse rate occurred in a group of fourteen patients with tertian malaria who were given plasmochin alone or plasmochin compound against a 14 per cent relapse rate in a group of seven patients given quinine and alkali.

The blood of patients with severe toxic symptoms is chocolate colored, and methemoglobinemia, as well as methemoglobinuria, is always present. In fact, methemoglobinemia is produced although no toxic symptoms are recognized. This occurs both in experimental animals and in man in practically 100 per cent of cases.

Fischer and Weise [10] made an extensive study of the cause of the cyanosis in plasmochin poisoning and found that methemoglobin could always be detected in the blood of twenty-five out of twenty-six patients within a few days after the commencement of treatment, while treatment was continued and for some time afterward. The intensity and duration increased with prolonged administration.

As has been pointed out, anything that damages the blood sufficiently makes the blood cells an unfavorable soil for malaria plasmodia to live and grow in and thereby tends to benefit malaria. The methemoglobinemia practically always produced by therapeutic doses of plasmochin would offer a plausible explanation for the limited effect thus far demonstrated for this drug. However, there may be considerable question whether such blood damage, even to the extent of producing chocolate colored blood in some cases, can be justified in view of the well known less effectiveness of the drug on clinical malaria than that of quinine. Final conclusion as to the justification of its use must await still

4. Roehl, W.: Plasmochin in Bird Malaria, Arch. f. Schiffs- u. Tropen-Hyg. supp. **30:** 311-318, 1926.

5. Brosius, O. T.: Plasmochin in Malaria, United Fruit Company, Boston, Sixteenth Annual Report, Medical Department, pp. 26-52.

6. Cordes, Wilhelm: Observations on the Toxic Effect of Plasmochin, United Fruit Company, Sixteenth Annual Report, pp. 62-67.

7. Phelps, B. M.: Clinical Results with Plasmochin, United Fruit Company, Sixteenth Annual Report, pp. 70-76.

8. Macphail, N. P.: Plasmochin in Malaria, United Fruit Company, Sixteenth Annual Report, pp. 67-69.

9. Sinton, J. A., and Bird, W.: Studies in Malaria with Special Reference to Treatment: IX. Plasmoquine in the Treatment of Malaria, Indian J. M. Research **16:** 159-177 (July) 1928.

10. Fischer, O., and Weise, W.: On the Actions and Side-Actions of Plasmochin in the Treatment of Human Malaria, Deutsche med. Wchnschr. **53:** 1380-1382 (Aug. 12) 1927.

further knowledge and experience as to the extent of the harm it does and the advantages to be derived from it.

ACTION OF PLASMOCHIN ON GAMETES

Now comes the most remarkable of all claims and experiences with plasmochin. One of the claims that has been put forth for plasmochin from its first introduction is that it has some selective and destructive action against the gametes of all kinds of malaria, but especially the crescents of *Plasmodium falciparum*; this in spite of the fact that the effect on the asexual forms of this parasite is so limited as to necessitate the use of quinine to control clinical symptoms. It is possible that many such statements and claims are merely the repetition of similar claims made by others and in many instances not based on carefully controlled observations.

Several apparently competent observers claim that they have found some alteration of the staining qualities or other changes in the appearance of the parasites. Others have not been able to confirm such observations. Only time and further accurate studies can tell whether this is the case or not.

Barber, Komp and Newman [11] fed susceptible mosquitoes on patients at various periods following the administration of plasmochin. The infectiveness of these patients to mosquitoes before plasmochin was given was proved by feeding and subsequent dissection of the mosquitoes. Only patients proved in this way to be capable of infecting mosquitoes were used for the plasmochin experiments. In three such subjects who were available, administration of plasmochin was followed by failure to infect. This result is the more remarkable in view of the fact that the gametes in some of the cases following plasmochin were observed to be alive and, in fact, exflagellation was also observed. Still more remarkable was the observation that in one case apparently the gametes were made impotent within a few hours by an infinitesimal dose of 0.5 centigram of plasmochin. This is a dose only about 1/140,000,000 of the body weight. Such selectivity is so rare, if it has ever occurred before, that it will be necessary for this work to be confirmed in a larger number of cases before it can be accepted as conclusive, notwithstanding the care the authors exercised for accuracy.

Deeks [12] states that these results have been confirmed to a considerable extent at least by Colonel Eugene Whitmore. He found that the administration of 1 centigram of plasmochin did not always prevent oocysts from developing in the mosquitoes, but that they were fewer in numbers. Furthermore, in no instance were mosquitoes infected that had fed on patients who were given 2 centigrams of plasmochin.

SUMMARY

1. Cinchona alkaloids, especially quinine, constitute the only specific remedy for malaria.

2. Arsphenamine, neoarsphenamine and acetarsone have some nonspecific effect, as do many other drugs, but such effects are so far inferior to that of quinine that their use is on the decline.

3. Plasmochin has a definite effect on clinical malaria and both clinical and parasitic cures may be accomplished with it alone. Plasmochin has far less effect on malaria than has quinine, and its toxicity, which is associated with methemoglobinemia, makes its routine use questionable.

4. Evidence has been brought forth by others that plasmochin has some specific action on the reproductive power of gametes. These observations are of great importance, if correct, and need further confirmation.

1551 Canal Street.

11. Barber, M. A.; Komp, W. H. W., and Newman, B. M.: The Effect of Small Doses of Plasmochin on the Viability of Gametocytes of Malaria as Measured by Mosquito Infection Experiments, Pub. Health Rep. **44**: 1409-1420 (June 14) 1929.

12. Deeks, W. E.: Recent Developments in the Control of Malaria, South. M. J. **23**: 417-420 (May) 1930.

ABSTRACT OF DISCUSSION

DR. L. L. WILLIAMS, JR., Richmond, Va.: To those primarily interested in the cure of malaria it is comforting when so close a student of malaria iterates the curative value of quinine and relegates to their proper places many of these latter day medicines, which, although somewhat beneficial, are not nearly so much so as quinine. Dr. Bass again performs a real service in emphasizing the superiority of the oral method of administration of quinine and in stressing the importance of giving the patient quinine in a form that may be easily retained and assimilated.

Dr. Bass has picked out the true value of plasmochin and has given it its proper place in treatment. Alone it will cure cases of benign tertian malaria. When used in conjunction with quinine in cases of benign tertian malaria the relapse rate is much less than when quinine alone or plasmochin alone is used. In malignant tertian malaria, however, plasmochin has no effect on the clinical course. In the proper treatment of malaria it is essential in the best interests of the patient that an accurate diagnosis be made of the type of malaria. Various workers studying the malarial paroxysm in the malignant tertian form found a considerable lessening of the alkali reserve of the body.

Sinton's experience showed that after only 110 grains (7 Gm.) of quinine with magnesium sulphate the cure rate was 60 per cent, and that when alkali was added the cure rate rose to 72 per cent. In another series of 237 cases without alkali the relapse rate was 72 per cent, whereas 281 cases treated at the same time with the addition of alkali showed a relapse rate of only 35 per cent.

The development of plasmochin and quinine for benign tertian, and alkali and quinine for malignant tertian malaria, with a possible public health benefit from the action of plasmochin on gametocytes, is the greatest advance in malarial therapy since the isolation of the alkaloid from cinchona bark.

DR. ALLEN H. BUNCE, Atlanta, Ga.: Quinine is a safe drug. It cures malaria. It may be given to the most ignorant patient with little or no supervision. Plasmochin is a dangerous drug and should never be given except under the closest supervision. In the two cases of plasmochin poisoning which I have studied, one of which proved to be fatal, in addition to the symptoms mentioned by Dr. Bass I found a hypoglycemia. This hypoglycemia suggests a method of treatment of plasmochin poisoning which will surely occur if plasmochin is used. I see no reason for giving up a safe, dependable treatment for malaria for something that is dangerous, except when patients can be kept under close observation.

DR. C. D. PILLSBURY, Washington, D. C.: Three or four years ago I had the experience of conducting the pediatric service at Gorgas Hospital in the Canal Zone, in which institution of course there is a large incidence of malaria, of both the tertian and the estivo-autumnal type. Plasmochin was introduced, as Dr. Bass has said, about 1926, but did not reach the Canal Zone for use in malaria until about a year and a half to two years later. We did not regard it as being worthy of routine use by any means, but in view of the fact that a large number of our patients were from the families of colored employees of the canal, and the economic factor entered decidedly in the prolongation of hospitalization (requiring as we did three negative blood smears before the patient could be discharged), and as we found that in the case of estivo-autumnal malaria many of these children showed crescents persistently over a long period, in an attempt to shorten the period of hospitalization we began to use plasmochin in these selected cases, though always with the continuation of the quinine treatment. Our

experience was necessarily limited because only a relatively few cases were resistant, that is, showed the persistence of the crescents over a period of ten days to two weeks after the temperature had been normal. In these cases, however, there did seem to be some benefit to be derived from the use of plasmochin, in that the crescents rather rapidly disappeared from the peripheral blood. In one case we withdrew the plasmochin as soon as the first negative blood smear was obtained and in a day or two later the crescents reappeared. Plasmochin was resumed, the crescents did not reappear, and the patient was discharged. This represents only a few cases, but my impression was that plasmochin was of some value in the control of crescents in estivo-autumnal malaria.

DR. C. C. BASS, New Orleans: The experience of Dr. Bunce, that there is a hypoglycemia, would be expected, I presume, from the serious damage that is done also to the liver. In all autopsies on plasmochin poison cases, the liver and the kidney are damaged. I am advised by biochemists that exactly this effect should result from aniline and aniline derivatives of almost any kind. I do not want to be misunderstood as claiming that plasmochin does not have any effect in malaria. I am sure that malaria can be cured with plasmochin as with many other things, but the question I think would naturally arise at the present time as to whether the price paid is worth the results.

ORTHOPEDIC ASPECTS OF CHRONIC RHEUMATISM OR ARTHRITIS*

ROBERT BAYLEY OSGOOD, M.D.
BOSTON

It is perhaps fitting that I should offer some explanation, if not a defense, of the invasion of a general medical field by a surgical specialty. The purpose of the invasion was to help defeat a strongly intrenching enemy of health whose ally seemed to orthopedic surgeons to be the lethargy of the general practitioner toward the importance of the problem of chronic arthritis and toward its solution.

Orthopedic surgeons were faced originally by the widespread deformities of the joints that were associated with the active disease and that persisted as fixed crippling deformities after the fires of active disease had burned themselves out. They have become aware of the generalized nature of the disease, of the frequent failures to relieve completely or even to influence materially the course of the disease by the surgical removal of supposed bacterial foci of infection, and of the contrasting successes of treatment planned along general lines of physical and mental rehabilitation and an appropriate dietary and eliminative regimen. The orthopedic surgeon has been the last resort rather than the first resort, and this fortunate attitude of the public, by enabling him to see the pitiful end-results, has stimulated him to attempt by any means he could devise to prevent these deformities and to recognize the prodromes of the disease. My defense is ended and I hope you will look on me as an ally in a common cause, ready to be told to return to my own particular business when our common enemy is evidently facing defeat.

CLASSIFICATION

Orthopedic surgeons dealing with acute and advanced cases of chronic arthritis have been conscious of two very different forms of the disease. These different types were evident and were characteristic at the onset, during the course and in all but the very terminal lesions of the disease. They show a different age incidence, a different anthropological body type incidence. The earliest microscopic and macroscopic changes in joint tissue are different and these changes continue to be characteristic throughout the course of an unchecked disease. Clinical investigators, pathologists and the patients themselves have all recognized the two main types. It may be possible, with increasing knowledge, to subdivide these two types many times. For the moment, a simple working classification and general recognition of at least two types is desirable, for their prodromal signs and symptoms are different, their local joint changes are different and it would seem as if the medical treatment of the two types should, in some respects at least, be different. The orthopedic treatment of the joint lesions themselves in the two types differs essentially. I shall call them the atrophic and hypertrophic types, because this terminology is perhaps most commonly employed in current American medical literature. It seems to be more differentially descriptive and more easily understood than the British terminology of rheumatoid arthritis and ostearthritis. It is the nomenclature that has been adopted by the American Committee for the Control of Rheumatism.

The first type is called atrophic, because, although the earliest pathologic change is proliferation of the synovial membrane, which one may only guess at in the roentgenogram, there is also a very early diminution in the density of the bone ends which can be appreciated as atrophy in the roentgenogram and soon as actual loss of substance; there is an early atrophy of the muscles controlling motion of the joints; and the disease is much more common in the slender, asthenic, atrophic type of person. The age incidence is from birth to middle life.

The second type is called hypertrophic, because, although the primary change may be a fibrillation of the articular cartilage that cannot be detected in the roentgenogram, there is almost simultaneous lime salt deposit in the form of chondro-osseous spicules and ridges at the articular margins, which is easily visible in the roentgenogram; there is no appreciable atrophy either of the bone ends or of the muscles controlling motion of the joints until very late; and the disease is perhaps more common in the stocky, sthenic, well nourished hypertrophic type of person who tends to an overdeposit of calcium in his tissues. Its age incidence is from middle life to death. As the disease progresses, in each type these characteristic changes become more striking in the roentgenograms, to the eye, when the joints are opened and in microscopic sections of tissue. The gross pathologic changes and the microscopic changes are consistent.

[Lantern slides were shown illustrating the following characteristics of the two types:]

A. In the atrophic type:
   1. Proliferation of the synovial membrane.
   2. Thinning and loss of calcium from the trabeculae of the bone ends; much fat.
   3. Erosion and imprisonment of articular cartilage; pannus formation.
   4. Loss of substance of bone ends and bony ankylosis.

B. In the hypertrophic type:
   1. Early delicate spicules forming at the articular margins, with no diminution of the density of the bone shadows and no evident change in the articular cartilage.
   2. Increase in the chondro-osseous hypertrophic overgrowths of the bone ends, with changes in the articular cartilage.
   3. The formation of joint mice, which is common.

* Read before the Section on Practice of Medicine at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

4. Dense trabeculation at bone end, in contrast with atrophic type.
5. Final loss of articular cartilage and eburnation of the bone beneath; deformation of bone end, but no bony ankylosis. Malum coxae senilis.

ORTHOPEDIC ASPECTS

In what ways may the orthopedic surgeon be useful in helping to control the types of diseases included under the term chronic arthritis? First, along with the rest of the medical profession by becoming aware of the wide incidence of the disease; second, by recognizing the prodromal signs and symptoms of the generalized disease; third, by helping to prevent deformity in the active stages; fourth, by restoring function by means of appliances and surgery when the disease has become quiescent.

Differences in Incidence, Onset, Signs and Symptoms, Roentgenologic Appearances and Morbid Histology in the Two Main Types of Chronic Arthritis Designated as Atrophic Arthritis and Hypertrophic Arthritis

	Atrophic Arthritis	Hypertrophic Arthritis
Common synonymous terms used in other classifications	Still's disease; rheumatoid arthritis; proliferative or ankylosing; arthritis deformans; spondylitis; Marie-Strümpell syndrome	Osteoarthritis; degenerative or nonankylosing arthritis; menopause arthritis; osteoarthritis of the spine, von Bechterew syndrome
Incidence:		
Age	From infancy to middle age	From middle age till death
Body type	More common in slender, ptotic women	More common in stocky, well nourished men and women
Onset	Acute to insidious	Subacute to ignorance of presence
Symptoms and signs	General health usually not robust; pain and disability often pronounced; joint swellings and muscle atrophy to be observed	General health usually excellent; pain and disability usually slight; joint swellings and muscle atrophy rarely noticeable
Roentgenologic Appearances:		
Early	No apparent cartilage or bone changes; generally, increased density of soft parts of joint	Slight "lipping" of articular margins; no general increased density of soft parts of joint
Late	Diminished density or bone atrophy; narrowed articular space; subluxation and ankylosis	Unless through long nonuse, no diminished density of bone; articular space irregular; hyperostoses; no ankylosis
Morbid histology:		
Early	Early proliferation of synovial membrane; pannus; usually small round cell infiltration	Early fibrillation of articular cartilage; no general proliferation of synovial membrane or small round cell infiltration; chondro-osseous hypertrophy of articular margins; joint mice
Late	Late destructive and atrophic processes in cartilage and bone; fibrous or bony ankylosis	Eburnation, deformation and hypertrophy of articular bone ends; cystlike cavities in cancellous bone near the articular surface; no true bony ankylosis

Prodromal Stage.—Rheumatism is said to run in families. Physicians have been impressed with the strong hereditary tendencies of chronic arthritis.

Atrophic arthritis is much more common in the young, thin, ptotic type of person. Women are more susceptible than men. The "set up" is inefficient. Their muscles are poor, their thoracic cages are narrowed, their diaphragmatic excursion is small, their abdominal viscera are sagged, the weight bearing lines of their joints are not true, muscle tonus is hard to maintain because the center of gravity is disturbed. They are fatigued. Their body mechanics is wretched. If bad body mechanics can be converted into good body mechanics; if inefficient "set ups" can be changed into efficient ones by positional rest periods, exercises and temporary supports; if more room can be provided in the thoracic cage for heart and lung action; if the diaphragmatic pump can be set working again on the abdominal veins and viscera; if their symptomatic joints can have their normal weight bearing thrusts restored; then there would seem to be inevitably less wear and tear, a higher circulatory coefficient, more nearly normal alimentation, less fatigue and a better chance for the defense mechanisms of the body to overcome whatever bacterial or chemical toxins are being elaborated, which presumably are or will be responsible for the symptoms in the joints.

With the cooperation of the patient and by the intelligent, patient effort of his physician, the skeletal structures and the relation of the viscera in both adults and children may be remodeled to a surprising extent.[1]

In hypertrophic arthritis, the same principles of improving faulty body mechanics obtain. With its older age incidence, the remodeling of the body is harder but, fortunately, there is usually less remodeling to be done. Supports are easier to apply and are more gratefully received. Fixation and protection relieve symptoms enormously. They may be applied without danger of interfering with the motion of the joints, and in the early stages are often only a temporary or intermittent necessity.

As Pemberton and Peirce have shown, there seems to be a deficient blood supply to arthritic joints. In the early stages of the disease when there may be no joint signs and only intermittent joint symptoms, increasing the local blood supply to joints by heat, massage, voluntary exercise and general physical therapy may well restrain, if not prevent, permanent changes of tissue in the joints.

It is, of course, to be understood that at this stage all possible true bacterial foci are being overcome, the balance between physical and mental outgo and intake is being restored, and all dietary surfeits or deficiencies are being corrected and elimination assured. These measures and others come within the purview of the internist.

I am eager, however, to interest the general profession in this matter of body mechanics. There is evidence to suggest that the association of poor body mechanics and poor health is not incidental but is potentially important, and that good body mechanics stands in a partly causal relation to good health. It seems to orthopedic surgeons that the attainment and maintenance of good body mechanics should be a sine qua non in the treatment of all forms of chronic arthritis.

Prevention of Deformity and Maintenance of Joint Motion.—To army medical officers it is hardly necessary to emphasize the importance of avoiding preventable deformity. The methods of prevention are simple; they include traction and the intermittent use of splints and appliances and of voluntary motion of the joints. If a joint threatens to become permanently stiff in spite of treatment, the optimum functional positions of ankylosis must be constantly kept in mind. A straight stiff elbow is vastly more useless than a right angle stiff elbow. We are not horses but men, and equinus of the foot is awkward. Knees left flexed more than 25 degrees throw all the other weight-bearing joints out of true.

Local Treatment of Joints.—The primary object of local treatment of the affected joints should be to

1. The methods for accomplishing this are described in a little book entitled "Body Mechanics and Health," by Miss Leah C. Thomas, Boston, Houghton Mifflin Company, 1929.

increase their blood supply. Heat in its various forms of application, massage, and voluntary exercise, stopping short, of course, of irritation of the joints; in other words, intelligent physical therapy, often attended by its useful handmaiden occupational therapy, relieves pain and improves function.

Sensitive weight-bearing atrophic joints tending to contractures may with advantage be supported by light apparatus in order to allow painless and nonirritating functional use so important in combating the atrophy of nonuse. A word of caution may be given here concerning too complete and too continuous fixation of joints in the atrophic type. Adhesions are prone to occur and atrophy increases very rapidly. A little pain is the lesser evil.

Protection by apparatus to sensitive hypertrophic joints is always grateful to patients and often relieves them of all discomfort. There is no danger of ankylosis in even completely fixing these joints for several days. There is less fear of producing atrophic changes in the bone.

There is no specific drug or vaccine for all cases of either type. There are many different drugs which are useful and appropriate for different cases and at different stages of the disease. The correction of actual endocrine deficiencies sometimes strikingly relieves arthritic symptoms. The orthopedic surgeon sits at the feet of the internist in respect of drugs.

Surgery.—Thus far, it seems as if the orthopedic aspects of chronic arthritis which I have mentioned ought to be, or to become, medical aspects as well. These measures are not orthopedic measures; they should be the measures of general medicine. Surgery, narrow as its field is in chronic arthritis, may perhaps be looked on as an orthopedic aspect until orthopedic surgery is again absorbed by general surgery, which should be its desired goal.

The surgery of chronic arthritis is patchwork surgery. Little is to be hoped from surgery while the disease is active. Perhaps the aspiration of a tense atrophic joint, perhaps the removal of an impinging hypertrophic spur, with no guarantee of its nonrecurrence if the disease is active; perhaps the removal of an incapacitating joint mouse.

When the disease has been arrested, surgery may restore large amounts of function. If an incapacitating proliferation of the synovial membrane persists, the whole membrane may be excised and it will regenerate as well as repair. Division of adhesions in the joints and contractures of muscles and joint capsules may improve motion and make possible good weight-bearing lines. Reconstruction operations, occasional formal and informal arthroplasties to restore motion, occasional arthrodeses to stop pain, in joints whose remaining few degrees of motion are a menace rather than a blessing: these are the main conrtibutions of surgery to the relief of chronic arthritis and, from the point of view of the patient who needs them, are great contributions. Let us remind ourselves, however, that in general they are necessary only when the patient's medical advisers have not been sufficiently alert or the patient has sought informed advice too late.

Every one will admit that chronic disease is the most important health problem of the present day as it has been through the centuries, but that too little attention is paid to it. Chronic rheumatism is the most widespread of the chronic diseases and both socially and economically the most important. In a recent house to house survey of two widely separated communities in the state of Massachusetts, each including both urban and rural inhabitants, fair samples of the whole state, chronic rheumatism was twice as common as heart disease, six times as common as tuberculosis and fifteen times as common as cancer. The European figures gathered by the International Committee for the Study of Rheumatism are quite as striking. The American Committee for the Control of Rheumatism, a branch of the international association, at its 1929 October meeting unanimously agreed on a concept of the disease. It is short and inconclusive but to my mind marks an epoch in the control of chronic arthritis because it means that internists and surgeons and research workers have been able to agree as to the probable nature of the disease and as to lines along which efforts for its control should be directed.

CONCEPT OF THE AMERICAN COMMITTEE FOR THE CONTROL OF RHEUMATISM CONCERNING THE DISEASE COMMONLY CALLED CHRONIC RHEUMATISM OR ARTHRITIS

1. The disease chronic arthritis, prevalent in all temperate zones, represents one of the most important, if not the most important, of existing social and industrial handicaps.

2. The committee conceives of the disease as a generalized disease with joint manifestations. Certain prodromes may be recognized. It is of vital importance that they be recognized.

3. It is the opinion of the committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The committee inclines to the belief that any one of these factors or certain combinations of these factors under appropriate circumstances may basically underlie the onset of the disease.

4. The committee feels it of vital importance that the medical profession have its attention directed to the methods of proved value which are at present at its disposal. In spite of etiologic uncertainties, the committee feels that properly managed therapy which takes into account both infectious and metabolic factors has yielded results which encourage optimism and impose the obligation of further developing such methods.

5. In the light of the foregoing considerations the committee purposes to broadcast as widely as possible both to the profession and to the public its concept of the nature of the types of arthritis included under the heading chronic rheumatism, its belief as to the probable predisposing and exciting causes of the disease, and the knowledge which the committee possesses or may acquire as to the most efficient methods of treatment.

CONCLUSION

I have been suggesting that there may be an orthopedic aspect to chronic arthritis; perhaps the relation of orthopedic surgeons to internists is slightly analogous to that of the physicists to the astronomers. As Professor Douglas reflects, "The riddles of the stars cannot be solved without involving the aid of the atoms, nor can the atom be comprehended without the aid of the stars." You internists are the stars. The orthopedic surgeon may be the atom.

372 Marlborough Street.

ABSTRACT OF DISCUSSION

DR. RALPH PEMBERTON, Philadelphia: In the last analysis, the group in medicine which has known much about this topic, because of having to be interested in it, is the group represented by orthopedic surgery. While Dr. Osgood was too polite to say so, he knows that orthopedists got their experience in large part because of the errors which we internists have committed. The study made by Nichols and Richardson twenty or thirty years ago was really made possible because of the interest which Dr. Osgood and a few of his confrères had in arthritis. Probably only a few here realize the degree

to which circulatory dynamics play a part in this problem. Those who have followed the work of Bock and his colleagues, based on the work of Haldane and other English physiologists, know that in any healthy individual the efficiency of the heart output may be reduced 50 per cent or more in changing from the recumbent to the erect posture. Think what that means in terms of the individual whose body mechanics and therefore whose circulatory mechanics is not correct. The evidence is strong today that at least part of the pathology of arthritis is referable to disturbance in the finer vascular blood supply. Dr. Osgood has helped us to understand that arthritis is a systemic disease; that it has prodromes; that the joint manifestations are only local expressions of the systemic disturbance and that this process may manifest itself elsewhere. Arthritis, as Charcot pointed out fifty or seventy-five years ago, is simply a branch of a great pathologic tree. We talk about "arthritis" because the joint symptoms are the most conspicuous and not because they constitute the whole story. One of the fine things that Dr. Osgood has done has been to introduce criteria of a stable nature in this field. There are many more needed, to be sure, but these questions of classification, the relation of the body mechanics, the condition of the viscera, and the question of the circulation as a whole are of fundamental importance. There is no justification today for any thoughtful physician to feel at sea in this disease. The amount of useful data available to any one who wants to inquire into the disease is large. It is the feeling of many of the American Committee for the Control of Rheumatism that there are few chronic diseases for which more can be done.

DR. RUSSELL L. CECIL, New York: Dr. Osgood has stressed the differentiation of chronic arthritis into two groups. I should like to suggest some differences in their etiology. The atrophic type—Dr. Osgood has referred to the inflammatory change that occurs in the joint, the so-called pannus, which is nothing more than granulation tissue, similar to that seen in any other inflammatory focus. This granulation tissue can readily be duplicated in rabbits injected intravenously with streptococci. They develop an experimental arthritis which goes to a chronic form and histologically the lesions produced in the rabbit are identical with those seen in man with the atrophic type of arthritis. On the other hand, the hypertrophic type of arthritis cannot be produced experimentally by bacteria. Bony changes may occur late in the disease just as they do in man, but a true hypertrophic arthritis is not produced in that way. It can be produced, however, by exciting trauma in the joint, for example, by putting a foreign body into the rabbit's joint. This rather indicates that atrophic arthritis is an infectious process and that the hypertrophic arthritis is bound up in some way with trauma or wearing out of the joint. In the laboratories at Bellevue Hospital, we have never been successful in getting bacteria of any kind from the hypertrophic joint. This also bears out the theory that atrophic arthritis is an infection, and that hypertrophic arthritis is a degenerative process. Furthermore, in recent studies not yet published we have found that the blood of patients with atrophic arthritis shows high agglutinins for arthritic streptococci, while these agglutinins are absent from the blood of patients with hypertrophic arthritis. Thus more and more evidence is accumulating that these two types of arthritis, both of which produce pain and discomfort and loss of function in the joint, are perhaps entirely different processes. The importance of this point of view is great from the standpoint of treatment. It means that in the atrophic type one's first efforts should be directed to removing all foci of infection and then one should proceed to build up the patient in a constitutional way, whereas in the hypertrophic type one is perhaps not so eager to remove foci but will direct attention to resting the joint, relieving strain, and giving the joint support of various kinds.

DR. W. PAUL HOLBROOK, Tucson, Ariz.: Out of a series of about 200 carefully studied patients with chronic arthritis in the past year more than half had definitely preventable deformities, had they had attention earlier.

DR. ROBERT B. OSGOOD, Boston: If these cases are treated early, the orthopedic surgeon will not have any cases to treat. The orthopedic surgeon is at present faced with this situation: he sits in his office and sees patients come in without teeth, without tonsils, without every known or unknown surgical focus, and the only thing they have left is their arthritis, which is just as bad as ever and going on quite as merrily. I do not mean to infer that these cases should be treated without removal of surgical foci. There may yet be discovered a specific bacterium. Many investigators have found specific bacteria. Dr. Cecil is seemingly nearer than any one else and all hope that he has identified the specific bacterium of this disease; but if he has, something more than merely treatment by specific attack must be done for these patients as they are tired out, they are fatigued, they are weary; they have other disturbances than those which their bacterial foci may have induced and which cannot be treated solely by bactericidal methods. I call attention to the third paragraph of this concept of the committee, of which Dr. Pemberton, Dr. Cecil and I happen to be members. We have all agreed to sign this: "It is the opinion of the committee that at the present time no single infectious agent or any completely defined dietary deficiency or metabolic disturbance has been conclusively shown to be the sole cause of these disorders. The committee inclines to the belief that any one of these factors or certain combinations of these factors under appropriate circumstances may basically underlie the onset of the disease." I happened to pick up this intriguing book of Haldane's and in it I found a paragraph that appeals to me strongly. He is talking about chronic diseases and says: "We are not likely to deal with them effectively on Pasteur's lines. We must divert our view from the microorganism to the patient. Where the doctor cannot deal with the former he can often keep the patient alive long enough to be able to do so himself."

STREPTOCOCCAL INFECTIONS OF THE EPIPHYSES AND SHORT BONES

THEIR RELATION TO KOHLER'S DISEASE OF THE TARSAL NAVICULAR, LEGG-PERTHES' DISEASE AND KIENBOCK'S DISEASE OF THE OS LUNATUM *

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ALEXANDER BRUNSCHWIG, M.D.
AND
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Bacteriologic studies have been undertaken in a group of obscure but kindred necrosing bone lesions, among which are Kohler's disease of the tarsal navicular, Legg-Perthes' disease, and Kienbock's disease of the carpal semilunar, in an endeavor to throw some light on their etiology. The most feasible causes to which they have been attributed may be grouped under the headings of infection, embolism and trauma. Axhausen considers the condition an anemic infarction from a mycotic embolus or a thrombus but without bacterial infection of the field. While these and the kindred necrosing lesions have been studied pathologically in great detail, particularly by the Germans, they have been investigated very little from a bacteriologic standpoint. In the few cases in which cultures have been made, they have usually been reported as sterile. In this series, cultures have been taken in two cases, each of Kohler's disease of the tarsal navicular bones, Legg-Perthes' disease, and Kienbock's disease of the lunatum. Streptococci grew in the cultures of four cases: one of Kohler's disease,

* From the Department of Surgery of the University of Chicago.
* Read before the Section on Orthopedic Surgery at the Eighty-First Annual Session of the American Medical Association, Detroit, June 27, 1930.

one of Legg-Perthes' disease, and two of Kienbock's malacia. In one case of Kohler's disease in a child with multiple osseous and glandular tuberculosis, the cultures were sterile and guinea-pig inoculations were negative for tuberculosis.

CASE 1.—*Kohler's disease.* A boy, aged 7, who entered the University of Chicago Clinics, Dec. 10, 1929, began to have pain in the medial midtarsal region of the left foot, thirty hours before admission. It soon became severe enough to prevent him from walking, and he developed malaise and fever. Six weeks previously he had an attack of sore throat with fever, enlargement of the upper cervical lymph nodes, discharge from the left ear, and an erythematous skin eruption which lasted three or four days. The fever and malaise lasted several days and he was in bed for about two weeks. The ear continued to discharge until recently and the general run-down condition has persisted to date.

Physical examination revealed a poorly nourished boy who appeared to be acutely ill and who experienced severe pain on movement of the left foot. The temperature at admission was 101 F. Regional examination showed the tonsils enlarged, cryptic and slightly inflamed. The upper deep cervical lymph nodes were slightly enlarged. There was no discharge from the ears. The heart was of normal size and no abnormal sounds were heard over it. The extremities were normal aside from the left foot, which was slightly swollen and markedly tender in the region of the left navicular bone. Blood examination revealed: red blood cells, 4,800,000; hemoglobin, 80 per cent; white blood cells, 19,000. Differential count: polymorphonuclears, 75 per cent; large lymphocytes, 3 per cent; small lymphocytes, 18 per cent; mononuclears, 4 per cent. Blood cultures were made on three flasks of dextrose broth and four tubes of Rosenow's brain broth. A roentgenogram (fig. 1) showed the shadow of the bony center in the left tarsal navicular to be irregular in outline and narrowed in its longitudinal axis. There was irregular reduction in density in its dorsal and distal portion, with increased density in its central portion. Roentgenograms of the right foot showed a normal shadow of the navicular bone.

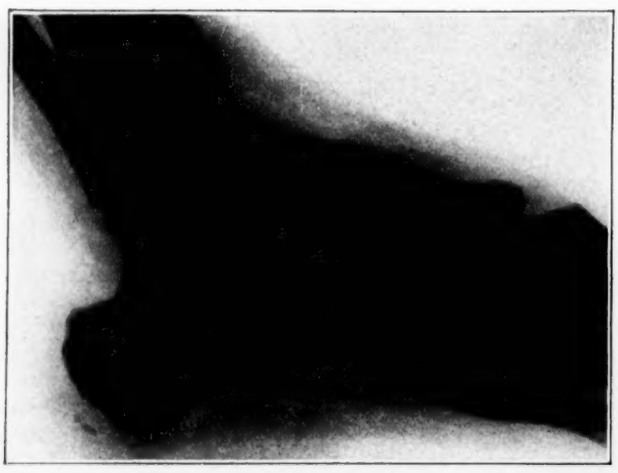

Fig. 1 (case 1).—Latent lesion of os naviculare producing symptoms for thirty hours.

At operation, thirty-six hours after onset of symptoms, the navicular bone was exposed through a dorsomedial incision. There was slight edema of the tissues about it and a slightly turbid fluid in the talonavicular joint. The navicular bone was excised and the wound closed without drainage.

The patient continued moderately septic for three days, after which the temperature gradually subsided and remained practically normal after the ninth day. Because of the fever, the wound was opened after twenty-four hours, but there was only a slight serohemorrhagic discharge from it for a short time afterward. The patient's general condition gradually improved and he was discharged with a healed wound four weeks after admission, since which time he has remained well. Tonsillectomy was done two months later.

The navicular bone, which was broken in two during removal, showed little change from the outside aside from the flattening. The cartilaginous periphery was from 2 to 3 mm. thick and not perforated. The center of ossification was irregular and broken down in part of its extent and replaced by brownish gray soft tissue. No pus was seen, but the bony area looked congested.

Microscopic examination of sections of a fragment of the navicular bone revealed evidences of both old and very recent

Fig. 2 (case 1).—Junction of cartilage and bone showing necrosis and absorption of bone (*a*) by young connective tissue containing some leukocytes, and (*b*) formation of new bone and cartilage; reduced from a photomicrograph with a magnification of 100 diameters.

changes. There was extensive destruction of bone and marginal destruction of cartilage along the osteocartilaginous junction at one side with filling out of the area by young connective tissue, which was necrotic in places and which surrounded and was absorbing small particles of dead bone in other places (fig. 2). In some places there was active formation of new cartilage and bony trabeculae along the inner surface of the cartilage (fig. 3). On the side opposite the area of destruction there was some old bone with extensive new bone formation in and about it which gave a greater density than normal. The cartilage was irregularly fissured and necrotic about the walls of the fissures, which in some places had been invaded by granulation tissue and in others by extravasated blood. This part of the picture was that of a destructive lesion of the bone of at least a few weeks' standing, which had resulted in necrosis and absorption of a large part of the center of ossification and of a small amount of cartilage with extensive absorption of the dead bone by fibroblastic tissue and partial repair by the formation of new bone and cartilage. In addition to this older change there was an acute inflammation through the bony center. The cancellous spaces of the new bone were extensively infiltrated with leukocytes and the blood vessels were engorged with red cells and a few leukocytes (fig. 4). There was also a moderate leukocytic infiltration of the living and necrotic fibroblastic tissue in the regions where bone had been destroyed.

Cultures were made of the bone as follows: Small chips were dropped into three tubes of Rosenow's medium (sheep's brain broth with marble) and two tubes of ascites dextrose broth. Ground material was placed in three tubes of Rosenow's medium and five tubes of ascites broth. Ground material was also implanted on five blood agar plates, two of which were left open and three covered by paraffin. The broth cultures all contained a growth of a long chain streptococcus at the end of eighteen hours except three tubes of ascites broth, which remained sterile. There was a growth of streptococcus which was more hemolytic than green-producing on all of the aerobic and anaerobic blood agar plates. Subcultures were grown from all of the positive cultures. The organism produced a small zone of complete hemolysis when grown on thin plates of blood agar, but it produced a green zone with very little hemolysis on dextrose blood agar. The blood cultures all yielded the same organism as was obtained from

the bone. Blood cultures taken twenty-four hours after operation remained sterile.

When the organism was grown in Dunham's peptone broth containing 1 per cent of lactose, maltose, mannite, saccharose, salicin or inulin there was no fermentation, but the addition of 10 per cent dextrose produced fermentation. The p_H, which was 7-6 at the start was reduced to 6-6 after five days of incubation.

Intracutaneous injections made twenty-four days postoperatively showed a strong reaction from 0.1 cc. of broth culture of the organism obtained from bone. *Staphylococcus aureus* produced a moderate reaction and stock *Streptococcus viridans* and Rosenow's medium produced only a faint reaction. A control skin test with the organism on another person gave a negative result.

Agglutination tests were attempted with the patient's serum, but spontaneous agglutination was so marked that the tests were unsatisfactory.

Early broth cultures killed dogs and rabbits in forty-eight hours but were nonpathogenic for guinea-pigs and mice. Later broth cultures injected into the femoral artery with talc emboli produced suppurative osteomyelitis, but no lesions in the short bones of the foot.

In this case there had been a latent lesion of the navicular bone bringing about the changes of Kohler's disease of at least a few weeks' standing. Accompanying this was an acute inflammatory change of recent date which no doubt began shortly before the onset of symptoms. The hemolyzing green-producing streptococcus that grew in the cultures undoubtedly came from the lesion and

Fig. 3 (case 1).—Formation of new bone and cartilage and absorption of old necrotic bone (*a*); reduced from a photomicrograph with a magnification of 150 diameters.

was not a contamination, as control cultures made of the surgeon's gloves, the skin and adjacent muscle remained sterile. The question is, then, whether the streptococcus was the cause of both the old and the recent lesions or whether it was a secondary invader and produced only the recent pyogenic inflammation superimposed on the picture of Kohler's disease. The evidence favors the view that the organism was there from the beginning and that a change either in virulence or in resistance was responsible for the acute condition which precipitated the symptoms shortly before operation. The original involvement probably went back to the time of the general disturbances accompanying the throat infection six weeks previously. It is impossible to say from pathologic observations whether it was an infarct

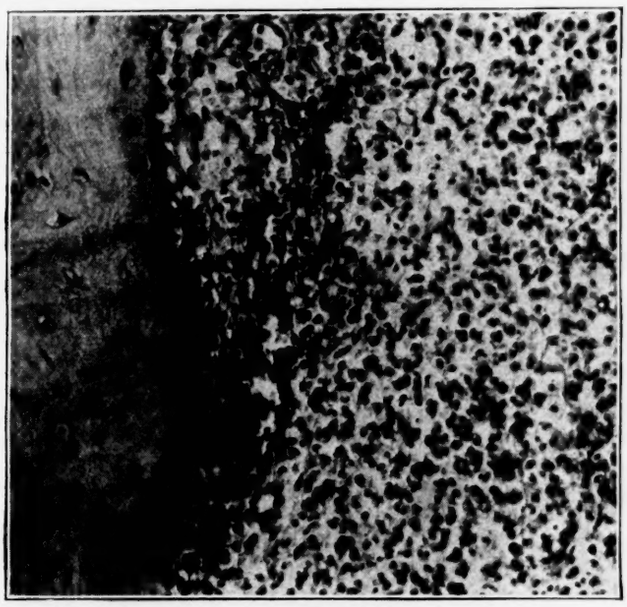

Fig. 4 (case 1).—Bone marrow showing infiltration with polymorphonuclear leukocytes; reduced from a photomicrograph with a magnification of 375 diameters.

due to a thrombus or embolus produced by the organism with subsequent activation and invasion of the infarcted field or whether it was a mild silent infection throughout the osseous center of the bone from the beginning. Mild localized osteomyelitis produced by a number of pyogenic organisms, including staphylococci, may remain symptomless for weeks or even months after the onset, as shown by the observations of Phemister [1] and others. The original throat infection with its complications was the type that is most frequently due to the streptococcus.

Lecéne and Mouchet,[2] and Estor [3] have observed cases of Kohler's disease that clinically presented the picture of pyogenic infection, and Lecéne and Mouchet found pathologic evidences of inflammation in material removed at operation. However, we can find no reports of cultures of tissues made in any of the cases that have come to operation.

In the following case, a symptomless Kohler's disease was discovered accidentally in roentgenographing the bones for tuberculosis of the tibia:

CASE 2.—A girl, aged 3, presented the clinical manifestations of tuberculosis of the upper cervical lymph nodes and extensive tuberculosis of the shafts of both ulnas, both humeri, the middle of the right tibia, and one metacarpal bone, all of which had developed within the previous two months. Roentgenologic examination confirmed the finding of tuberculosis of the bones. A roentgenogram of the right tibia incidentally disclosed the typical picture of Kohler's disease of the right tarsal navicular which had produced no symptoms (fig. 5).

1. Phemister, D. B.: Silent Foci of Localized Osteomyelitis, J. A. M. A. **82**: 1311-1315 (April 26) 1924; Operation for Epiphysitis of the Head of the Femur (Perthes' Disease), Arch. Surg. **2**: 221 (March) 1921.
2. Lecéne R., and Mouchet, A.: Revue d'orthop. **11**: 105.
3. Estor, E.: Revue d'orthop. **12**: 365, 1924.

Subsequent examination revealed slight tenderness in the region of the bone. Biopsies were performed on an involved cervical lymph node and the foci in the right tibia and right tarsal navicular. Histologic examination of tissues from the lymph node and tibia revealed the typical picture of tuberculosis. The material obtained from the center of ossification in the navicular was broken down and microscopic examination showed necrotic bone, immature connective tissue and phagocytic tissue which in places was absorbing bone and cartilage while in others it was necrotic and hemorrhagic. No signs of

Fig. 5 (case 2).—Kohler's disease in child with multiple tuberculosis of bones and cervical lymph nodes.

tuberculosis were found histologically. Guinea-pig inoculations of the material from the navicular were negative for tuberculosis, and broth and aerobic and anaerobic blood agar cultures remained sterile. The child died at home six weeks later, presumably of the tuberculosis.

In addition to emphasizing the fact that the lesion may develop silently, this case also suggests that tuberculosis may be one of the factors that brings about this group of diseases and supports Axhausen's [4] original assumption that they may be the result of a caseous tuberculous embolus which blocks the artery to the bone. Tuberculosis has been associated with it in other cases, as in the one reported by Massabuau and Marchand,[5] in which a nodule in contact with and apparently arising from a diseased navicular was excised and proved to be tuberculous by guinea-pig inoculation and histologic examination. In another of their cases, a fistula leading to the navicular developed that was assumed to be tuberculous.

LEGG-PERTHES' DISEASE

Evidence supporting the hypothesis that one of the causes of Legg-Perthes' disease may be pyogenic microorganisms is partly clinical and partly pathologic. There have been only a few reports of bacteriologic studies. *Staphylococcus aureus* grew in the cultures of patients operated on by Legg [6] and Kidner.[7] Aerobic cultures of a patient operated on by Phemister [8] remained sterile. The clinical evidence in certain cases is suggestive. The onset may be accompanied by fever, as in the case of McWhorter,[9] and the disease has developed in the course of or following an acute febrile polyarthritis, as reported by Perthes,[10] Brandes [11] and Sundt.[12] Histologic examination of lesions in the active stages shows necrosis of the bone and a marked fibroblastic and fixed tissue phagocytic reaction, absorption of the necrotic bone and necrosis of the fibroblastic tissue with usually little or no leukocytic infiltration, but sometimes with extensive extravasation of blood. In later stages there is more or less extensive regeneration of new bone and cartilage. Fairly large sequestrums have also been observed in the epiphysis which suggest infection.

Cultures were made of materials removed at operation in two cases:

CASE 3.—A boy, aged 12, had slight pain and limp in both hips for a period of about one year which had developed without any apparent cause. Examination was essentially negative aside from enlarged tonsils and markedly restricted motion in both hips. A roentgenogram showed the picture of advanced Legg-Perthes' disease in both hips with flattened heads and broadened necks and a large oval area of reduced density in the juxta-epiphyseal portion of the superior and lateral portion of the left neck (fig. 6). Biopsy of the neck lesion was performed. There were several cubic centimeters of clear fluid in the hip joint. When the neck was opened, a cavity was found filled with dark fleshy tissue dotted with yellowish white necrotic specks and a few fine bony trabeculae. It was curetted. Dr. John Gordon made cultures of the material removed from the neck, on aerobic and anaerobic blood agar plates and deep shake blood agar tubes. An organism, which proved to be an alpha hemolyzing green-producing streptococcus, grew on the cultures. The wound healed by first intention but the condition of the patient was slightly febrile for two weeks and on the tenth day, when the temperature reached 100 F., a blood culture yielded the same organism as grew in cultures from the hip. Intravenous injections of the organisms in young dogs and rabbits failed to produce bone lesions.

Histologic examination of the tissues revealed extensive bone absorption with replacement by hemorrhagic and partly degenerated fibroblastic tissue. A small portion of cartilage of the head which was excised showed extensive erosion by the same type of tissue. There were areas of polymorphonuclear infiltration (fig. 7) and a good deal of extravasated blood. Small particles of bone sand were seen in the process of absorption.

Fig. 6 (case 3).—Legg-Perthes' disease with cavity in neck (*a*), which was examined at biopsy.

The histologic picture was that of bone necrosis, fibroblastic proliferation and necrosis, hemorrhage and leukocytic infiltration. The patient gradually recovered from the symptoms, and five years later presented healed but extensively deformed heads of the femurs with moderate limitation of motion about equal in the two joints. It appears reasonable to assume that the organism grown in the cultures from the neck of the femur were contained in the tissue removed, and this is substantiated by the growth of the same organism in a blood culture made eight days postoperatively. There still remains the question as

4. Axhausen, G.: Arch. f. klin. Chir. **129:** 26, 1924; **151:** 72, 1928.
5. Massabuau, G., and Marchand, L.: Rev. d'orthop. **16:** 32 (Jan.) 1929.
6. Legg, A. T.: Boston M. & S. J. **162:** 202, 1910.
7. Kidner, F. C.: Am. J. Orthop. Surg. **14:** 339 (June) 1916.
8. Phemister (footnote 1, first reference).
9. McWhorter, G. L.: Surg. Gynec. Obst. **38:** 632 (May) 1924.
10. Perthes, Georg: Deutsche Ztschr. f. Chir. **57:** 111, 1910.
11. Brandes, M.: Deutsche Ztschr. f. Chir. **154:** 1 (June) 1920.
12. Sundt, H.: Lancet **1:** 1153, 1921.

to whether the organisms were the cause of the disease or were secondary invaders from the blood stream.

CASE 4.—A girl, aged 7, had pain in the right hip for one month beginning four and one-half months before examination. A limp developed soon after the onset of pain and has continued since. There had been no sore throat or pyrexia since the onset of the trouble. Examination gave essentially negative results except that the right hip showed marked limitation of abduction and rotation and moderate limitation of flexion. A

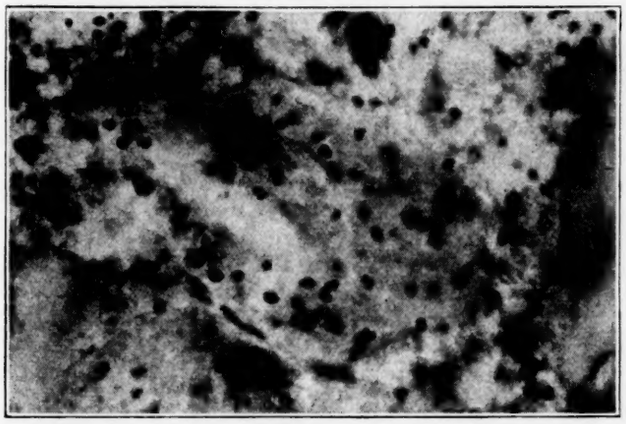

Fig. 7 (case 3).—Leukocytic infiltration of the breaking down tissues occupying cavity in neck.

roentgenogram showed flattening of the head and broadening of the neck of the right femur, with increased density of the lateral portion of the head (fig. 8). A biopsy was performed.

On exposure of the hip there was no excess of joint fluid and no change in the synovia. The head was flat and smooth. A window of cartilage was excised from it, exposing a cavity containing dark to gray soft tissue in which were small particles of bone. Most of the center was curetted out.

Five tubes of Rosenow's sheep's brain broth and three tubes of ascites broth were inoculated with unground particles of curettings. Four Rosenow's and two ascites broth tubes were inoculated with ground tissue; four blood agar plates were smeared with ground tissue, two of which were then sealed with paraffin. There was no growth in any of the cultures after twenty-one days of incubation.

Histologically, some of the bone was broken down and the space occupied by fibroblastic tissue in which were embedded small particles of necrotic bone that were being absorbed. A few giant cells were present, but there were practically no leukocytes and there was very little cartilage or bone proliferation (fig. 9). Postoperatively, the curetted region rapidly filled with dense new bone while the small mesial portion of the head that was not curetted remained porous. Figure 11 shows the appearance seventy-six days after operation. The function of the hip was then about the same as before operation.

That one cause of necrosis of the growing femoral head may be traumatism is supported by the facts that it sometimes follows closed reduction of congenital dislocation of the hip and that in Nussbaum's experiments of cutting the epiphyseal vessels necrosis and subsequent deformity resulted.

Mau[13] has shown experimentally that continuous compression of the partially ossified vertebra of the artificially kyphosed tail of a young rat will injure the vessels running through the cartilage to the center of ossification on the concave side and result in necrosis of the bone of the epiphyses with subsequent irregularity and deformity during the period of reconstruction.

No record could be found of bacteriologic examination of tissues removed in cases of Kienbock's disease of the carpal lunatum. However, Gold[14] reports a histologic examination of one case showing the usual picture of bone necrosis as well as extensive leukocytic infiltration with the formation of a small abscess. The persistent pain and the swelling at the onset in many cases suggest a low grade infection, but sections of the excised tissue usually show extensive necrotic, absorptive, and reparative changes with no infiltrative cells. Cultures were made of the tissue removed in the following two cases:

CASE 5.—A man, aged 20, had pain and stiffness in the right wrist of eight months' duration. While working as a pipe cutter he developed pain, swelling and tenderness in the right wrist. The swelling disappeared but pain and stiffness continued and were always worse after usage. Examination eight months after the onset showed limitation of motion in the wrist and tenderness over the lunatum. A roentgenogram (fig. 10) revealed slight collapse of the proximal side of the lunatum with subcortical reduction in density and slight irregular increase in density of the central and ulnar portions of the bone. A lateral view revealed flattening of the lunatum most marked dorsally. An operation was performed, which consisted of excision of the lunatum in two fragments through a dorsal incision. The wound was closed and it healed by primary union. The larger dorsal fragment was flattened and contained a small cavity filled with dark gray fleshy material. The palmar fragment consisted of dense bone. Cultures were made of small chips in eight tubes of Rosenow's sheep's brain broth and one tube of ascites broth. Fragments were ground in a closed mortar and cultures were made on two tubes of Rosenow's medium and two of ascites broth. Four blood agar plates were smeared with ground material, two of which were then coated with paraffin. There was a growth of long chain streptococcus in forty-eight hours on two Rosenow tubes, and in the ascites broth inoculated with unground material. There was a similar growth in all the cultures on blood agar plates inoculated with the ground material in from twenty-four to

Fig. 8 (case 4).—Legg-Perthes' disease.

forty-eight hours. It was a green-producing alpha hemolyzing bile insoluble organism growing scantily in short chains. Agglutination tests with the patient's serum were unsatisfactory because of spontaneous clumping. Fermentation tests showed slight acid production after five days of growth in Dunham's peptone broth containing 1 per cent lactose, maltose, mannite, saccharose, salicin or inulin. Skin tests thirteen days postoperatively with a 0.1 cc. intradermal wheal gave, in twenty-four hours, a marked reaction with the dead bacteria obtained in cultures from the tissue, a more marked reaction from

13. Mau: Ztschr. f. orthop. Chir. **1**, 1929.
14. Gold, cited by Axhausen, Arch. f. klin. Chir. **151**: 72, 1928.

staphylococci, a slight reaction from another strain of *Streptococcus viridans*, and no reaction from Rosenow's medium.

The femoral artery in three dogs was injected with 2 cc. of a suspension of talc and bacterial sediment. One dog died in twelve days and another in twenty-two days from severe osteomyelitis of the leg and foot bones and gangrene of the soft parts. The third dog developed acute osteomyelitis of the leg and foot bones, which had passed into the chronic sclerosing

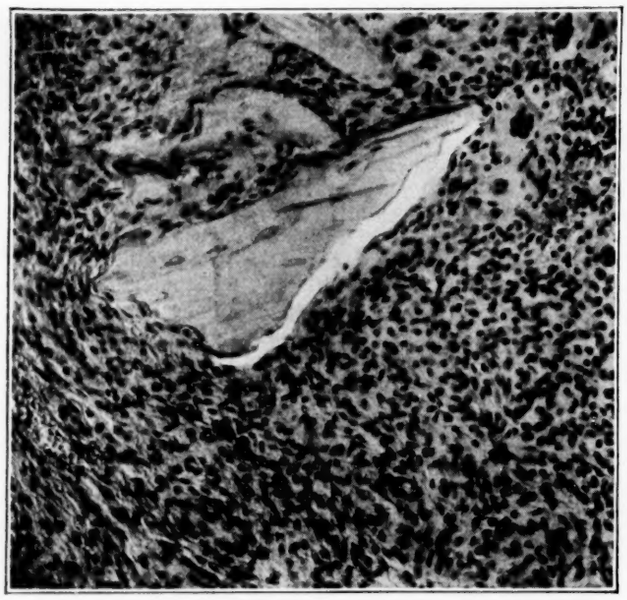

Fig. 9 (case 4).—Necrotic bone and fibroblastic and fixed tissue phagocytic reaction.

stage, and streptococci were not recovered from the tibia in cultures made at necropsy eight and one-third months later.

Microscopic sections of the lunatum showed central necrosis and breaking down of bone by fibroblastic tissue with considerable absorption of cartilage. There was practically no leukocytic infiltration. In some regions there was extensive regeneration of bone and cartilage. The process of transformation was one of absorption and replacement of the dead bone by fibroblastic tissue, which in turn was being replaced by new bone formed from surviving old bone rather than one of creeping substitution of the dead bone by new as occurs extensively in the organization of areas of aseptic necrosis.

CASE 6.—A man, aged 20, developed pain and limitation of motion in the right wrist eleven months before admission to the hospital. The symptoms gradually increased in severity. Roentgenograms taken ten and one-half months, nine months and three months before, and at the time of examination revealed early slight increase in density and deformity with a progressive reduction in density and collapse of the semilunar bone. An operation was done, consisting of an excision of the lunatum through a dorsal incision and closure of the wound, which was followed by primary healing. The dorsal two fifths showed an extensive cavity filled with necrotic débris. The palmar portion was irregular in outline but consisted of dense trabeculated bone. There was a thin irregular layer of cartilage about the periphery. Aerobic and anaerobic cultures were made on blood agar plates and two cultures on dextrose blood broth. The tubes of dextrose blood broth showed clouding in twenty-four hours; there was a growth of long chain streptococcus in each tube. Two rabbits were each injected intravenously with 5 cc. of the broth culture. The original cultures were killed over night by a defective incubator. The rabbits showed no change and were killed at the end of forty-eight hours. A femur was removed from each animal for culture. Those from the bone marrow of one remained sterile, while in the others a green-producing alpha hemolyzing streptococcus was grown. Whether the organism growing in the cultures from the rabbit was the same as that growing in the cultures of the lunatum is very questionable.

COMMENT

The organisms grown in the cultures of these four cases were either the cause of the disease or secondary invaders or contaminants. The significance of the bacteriologic observations varies with each case. In case 1 there can be no doubt about the presence of a hemolyzing streptococcus which on certain mediums showed a decided tendency to the production of a green zone and which had produced the picture of infection in the bone. It seems logical to assume that it lodged in the bone early in the course of the throat infection, producing mild symptomless inflammation with necrosis, which was followed by an absorptive and regenerative period. Then there came an acute exacerbation of the infection with the onset of symptoms and the formation of the picture of acute osteomyelitis. It would be far-fetched to assume that the older picture of Kohler's disease was produced by a noninfectious agent and that the acute pyogenic reaction was due to a recent secondary invasion by the streptococcus. There is more room to doubt that the streptococci isolated in cases 3, 4 and 6 were the cause of the disease, as there was no acute inflammatory reaction manifested either clinically or pathologically at the time of operation and of culture of the tissues, except for a rather extensive polymorphonuclear infiltration in case 4. Secondary invasion of relatively benign bone lesions by streptococci has not been proved for other diseases. The assumption is favored somewhat by the fact that the bone marrow is a filter for and may possibly harbor for a time bacteria entering the body by way of the blood stream.

CONTROL CULTURES

The view that the organisms in these cases were obtained from cultures made from the diseased tissues is greatly strengthened by a series of controls in which apparently noninfected tissues were removed in the same operating room and cultures made from them in the same laboratory under identical conditions. Cultures were made from thirty-nine tissues in Rosenow's sheep's brain broth with marble, which affords opportunity for growth of bacteria at all degrees of oxygen tension. Of these, 14 were bone and bone marrow, 5 cartilage, 9 muscle, 6 fat and fascia, 3 synovia, 1 nerve, and 1 thyroid gland. Of 85 tubes inoculated there were growths on 13, of which 9 were staphylococcus, 2 *Bacillus subtilis*, 1 diphtheroid, and only 1 *Streptococcus viridans*. The *Streptococcus viridans* grew in cultures of the synovial lining of a hip joint in a case in which a Whitman reconstruction operation was done for ununited fracture of the neck of the femur of two months' standing. There are numerous reports of control cultures of clean wounds showing staphylococci as a contamination arising apparently from the skin, in as high a percentage of cases as it was found here.

Fig. 10 (case 5).—Kienbock's disease of lunatum of eight months' standing.

The impression has been gained that streptococci are rarely contaminants of cultures made of wounds at operation. Cecil [15] reports the finding of a slightly hemolysing green-producing streptococcus in 4 per cent of blood cultures made on persons free from clinical signs of infection. The fact that the wounds in these cases healed by primary intention is no argument against the presence of streptococci, as surgical experience has shown that when they are present in low virulence they do not produce evident infection of the operative wound. This is the case after operations on chronic arthritic joints from which *Streptococcus viridans* has been grown. Streptococci are among the commonest causes of vegetations in the left side of the heart which lead to arterial embolism. Thus, *Streptococcus viridans* is the cause of subacute bacterial endocarditis which frequently leads to embolism and infarction of the viscera containing end-arteries as the spleen and kidneys, which lesions, although they are infected by the organism, do not suppurate.

Rheumatic endocarditis involving the left side of the heart may also produce embolism and infarction. While the bacteriology of rheumatic fever is still unsettled, the organism that has most frequently been isolated in the disease has been a streptococcus belonging to one of the two broad groups of *Streptococcus viridans* and anhemolytic streptococci. The recent work of Von Glahn and Pappenheimer [16] has shown that in rheumatic fever and rheumatic heart disease there is more or less extensive involvement of the blood vessels producing localized arteritis in smaller vessels. Such lesions might lead to blockage of the arteries from thickening of the wall, from thrombosis or from embolism.

There appears to have been no extensive search made for infarcts either sterile or infected with these organisms in the bones in the diseases enumerated and there have been no cases of necrosing lesions of the epiphyses and short bones associated with endocarditis or multiple arthritis of any form except those previously mentioned in connection with Legg-Perthes' disease.

In view of what is known about the pathogenicity of the less virulent form of streptococci and in view of the positive bacteriologic observations in these four cases it is not improbable that in each case the organisms were the cause either direct or indirect of the disease. If they were the direct cause, it was by lodgment of the bacteria in the bone, as in ordinary pyogenic osteomyelitis with the production of a quiet type of inflammation characterized by extensive necrosis and a fibroblastic and fixed tissue phagocytic rather than an infiltrative cellular reaction. If they were the indirect cause, they first produced either a thrombus or vegetation in the heart or arteries, which reached the bone as an embolus, or they produced a local obliterating arteritis or thrombosis within the bone itself, cutting off the blood supply and creating a bone infarct. If this was the case, then the infarcted area was invaded by the bacteria so that it would be improper to speak of the lesion, as Axhausen does, as "aseptic infarction," since it is septic infarction, the infection being of low grade. That aseptic infarction might be possible, owing to the low virulence of or the acquired immunity against the organism which produced the embolus, is shown by case 5, in which the cultures were sterile, although earlier cultures might have shown the organism.

15. Cecil, R. L.; Nichols, E. E., and Stainsby, W. J.: Etiology of Rheumatoid Arthritis, J. A. M. A. **94**: 2090 (June 28) 1930.
16. Von Glahn, W. C., and Pappenheimer, A. M.: Tr. A. Am. Physicians, 1928, p. 203.

The pathologic changes in these cases are different from those following aseptic bone necrosis due to severance of blood vessels as in bone transplants, and the femoral head in certain cases of intracapsular fracture of the neck of the femur followed by bony union of the fracture. In these reported cases with positive cultures and in case 4, the bone was largely absorbed and replaced by fibroblastic tissue and fixed tissue phagocytes which either persisted or underwent necrosis or were replaced by dense new bone formed from areas of old bone which had survived. On the other hand, in aseptic necrosis from vascular severance the dead bone is invaded by blood vessels and osteoblasts and there is simultaneous absorption and partial replacement of dead bone by new bone, a process known as creeping substitution.

It is a curious fact that while primary staphylococcus infections of the shafts are common they are very rare in the epiphysis and short bones involved in this group of diseases.

SUMMARY

1. Bacteriologic studies were made of biopsy material of two cases each of Kohler's disease of the tarsal scaphoid, Legg-Perthes' disease and Kienbock's malacia of the os lunatum. Streptococci grew in cultures of four cases and cultures of two remained sterile.

2. A streptococcus which on blood agar plates was more hemolysing than green-producing and on dextrose blood agar plates was more green-producing than hemolysing grew on cultures of one case of Kohler's disease showing acute symptoms.

3. Green-producing streptococci grew on cultures of one case of Legg-Perthes' disease and one case of Kienbock's malacia.

4. A streptococcus which was not further identified grew in cultures of one case of Kienbock's malacia.

5. One case of Kohler's disease, cultures and guinea-pig inoculations of which were negative, occurred in association with multiple osseous and lymph glandular tuberculosis.

6. One case of apparent Kohler's disease developed following traumatism.

7. These observations suggest that streptococci play an important rôle in the etiology of these diseases but that other factors may also bring them about. Whether the streptococci reach the bone in an embolus which blocks the main artery or whether they lodge there alone remains undetermined.

ABSTRACT OF DISCUSSION

DR. OSCAR L. MILLER, Charlotte, N. C.: The inquiry which Dr. Phemister keeps up on this and other allied subjects is most interesting. I have always had an open mind in regard to infectious or traumatic origin of the diseases he is discussing. Certainly some cases of Legg-Perthes' disease show disturbance of bone texture similar to what physicians are taught to believe is destruction by infection. It may yet be proved that the so-called aseptic necroses may have had an infectious origin. The infectious phase may be short but may destroy the blood supply to portions of the bone and then the aseptic phase ensues.

DR. J. ALBERT KEY, St. Louis: At present every one looks a little askance at results in which *Streptococcus viridans* is incriminated. At the same time it is known that that organism, among others, is capable of creating a low grade lesion in bone which may later subside and become sterile. Consequently, sterile cultures from these lesions do not mean that they were not originally bacterial, nor do sterile cultures mean that bacteria are not present, because the right culture medium may not be available for the particular organism. There is another

possibility. Dr. I. A. Kendall tells me that he is able to attenuate organisms to a point at which they will be alive and produce toxin but have lost the power of reproduction. Several years ago Dr. Phemister reported recovering *Streptococcus viridans* from bone cysts. I have taken cultures in three cases and have grown low grade staphylococci in all. Two may have been contaminations. One I am sure was not a contamination, because I took smears at the operating table and in one instance I got over a hundred colonies on one blood agar plate. This is interesting in view of the recent work in which all the bone cysts are being laid to hyperactivity of the parathyroids. In the cases which Dr. Phemister presented the fact must be considered that two of them look like metastatic abscesses; that is, the patient had casual streptococci in the blood stream which landed on the head of the femur or scaphoid and caused disease. If the etiology of these conditions is going to be settled, a lot of people must work on them to decide whether or not they are infectious, rather uniform results must be obtained, and these must come from people whose work can be credited and controlled. Osgood-Schlatter's disease of the tibial tubercle is rather common. It is quite acute at times and can be opened up and a wedge shaped piece removed and the patient can get up as soon as the wound is healed. In my experience, limited to one operative case, that greatly shortens the period of disability. In a bilateral case, I removed wedges and the boy had no further symptoms. The specimens showed low grade granulation tissue and small cysts in the cartilage. I took ten cultures from each tibial tubercle. Diphtheroid organisms grew in two of the cultures. I put these into the tibial tubercles in young rabbits and dogs, but they did not develop Osgood-Schlatter's disease.

Dr. C. B. Francisco, Kansas City, Mo.: I should like to say following up Dr. Key's remarks about the tibial tubercle that that offers the best group of cases for study. I have begun to study the tissue of the anterior tubercle from the cultural standpoint and hope to be able to get some information, although I doubt whether infection is the cause of any of these conditions. In regard to Dr. Phemister's case of the bilateral Koehler's disease, the first case that he showed, one always wonders, in taking a history of such a case, whether the child did not have this condition before it had the illness. That may have been responsible for these germs getting down to this location where the resistance was lower; so that one is still conning over as to whether the infection is the cause of the condition, when the infection is found, or whether the infection locates there as a result of the tissue's resistance being lowered.

Dr. D. B. Phemister, Chicago: Dr. Key referred to the fact that the micro-organisms in these conditions might be secondary invaders. This is quite true, but on the whole it is safer to explain disease processes on the basis of one factor rather than several. Osgood-Schlatter's disease belongs in this group. I have recently seen a case in which the disease was bilateral but on one side there were two areas of reduced density in the metaphysis of the upper end of the tibia that were suggestive of bone infarcts. Consequently the lesions in the tibial tubercle may have been due to the same underlying cause. *Streptococcus viridans* is an organism that makes low grade infectious processes involving the soft parts and it would be strange if the skeleton should be immune to it. The difficulty in deciding whether or not it is an etiologic factor lies in the fact that it may be a secondary invader of other lesions in the soft parts and the same may apply to bone.

Fig. 1.—A patient, aged 43, had had bronchial cough for two years; no history of any nasal disturbance; transillumination, right; dark; 3 cc. of iodized poppy-seed oil 13 per cent retained. At operation a thick cystic membrane was completely removed; cough disappeared six weeks later.

USE OF IODIZED OIL IN DIAGNOSIS OF NASAL SINUS CONDITIONS

FURTHER OBSERVATIONS *

HENRY M. GOODYEAR, M.D.
CINCINNATI

Late in the year of 1925, prompted by the work of the French in the demonstration of iodized oils in the spinal column and in the ventricles of the brain, I made my first roentgenograms with 40 per cent iodized poppy-seed oil (lipiodol) injected into the antrums. A study of thirty-five cases of various sinuses injected (except ethmoids) were reported [1] with lantern slides in March, 1926, before the Cincinnati Academy of Medicine. In the same month Fraser [2] reported a similar series in southern Michigan.

During the following month Proetz [3] read a paper before this section at Dallas on displacement and the use of iodized oils and in May, 1926, MacCready [4] presented a paper on the use of iodized poppy-seed oil in the antrums. These constituted the first recorded papers read in this country devoted to the use of iodized oils in nasal sinuses.

The value of iodized poppy-seed oil in diagnosing nasal sinus conditions was quickly realized and today, in a matter of four years, its use is more or less familiar to every one in the practice of rhinology, thus marking the progress of a new and important step in sinus diagnosis.

It was thirty-three years ago (1897) that Scheir first diagnosed pus in the nasal sinus by radiography and confirmed the diagnosis by irrigation. Further work by such men as Pfahler, Coakley, Mosher and Caldwell established the fundamentals and it appeared that every antrum could be diagnosed by roentgenograms. These observations soon proved to be inaccurate. However, their work marked a new era in the diagnosis of sinus conditions, and now another step has been taken beyond the simple roentgenogram.

The use of stereoscopic views is also increasing and their importance, with or without opaque oils, is watched with interest.

Today in the search for the focus of infection in chronic bronchial coughs, unaccountable elevations of temperature, arthritis, chronic myocarditis, pyelitis, cystitis, various eye conditions, and headaches, it is not

* Read before the Section on Laryngology, Otology and Rhinology at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

1. Goodyear, H. M.: Iodipin in Diagnosis of Nasal Sinus Conditions, Arch. Otolaryng. **4**: 223-227 (Sept.) 1926.

2. Fraser, R. H.: Iodized Oil (Lipiodol) in Oto-Laryngological Diagnosis; Opaque Injection Study of Thirty-Five Maxillary Sinuses, J. Michigan M. Soc. **25**: 270-274 (June) 1926.

3. Proetz, A. W.: Displacement Irrigation of Nasal Sinuses: A New Procedure in Diagnosis and Conservative Treatment, Arch. Otolaryng. **4**: 1-13 (July) 1926.

4. MacCready, P. B.: Iodized Oil as Aid in Diagnosis of Chronic Sinusitis and of Maxillary Cysts, Boston M. & S. J. **195**: 464-467 (Sept. 2) 1926.

sufficient to report that the nose shows no evidence of polypi or pus. The roentgenogram may show slight changes or none and the antrum lavage may be negative. Yet these observations are neither final nor sufficient.

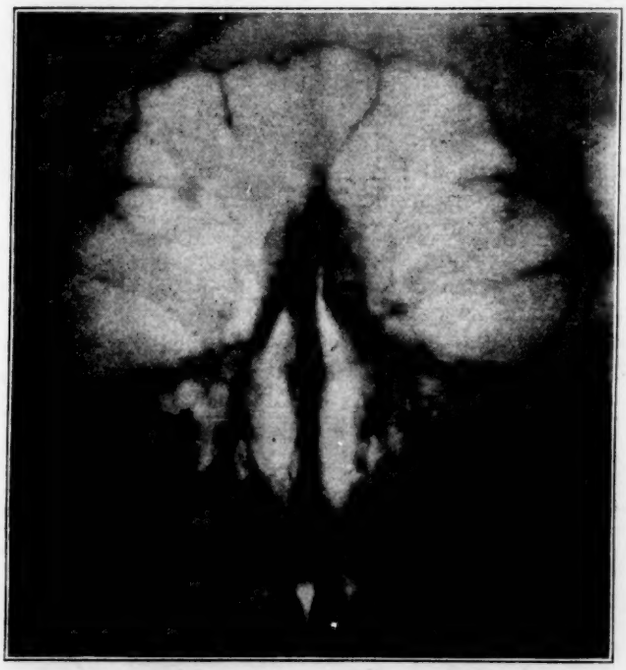

Fig. 2.—Marked filling defect on both sides in a patient who complained of intermittent arthritis and postnasal dripping. Plainly a case for radical operation.

Too many important cases show a haziness in roentgenograms and a negative lavage yet with opaque oils a definite filling defect is found which proves on operation to be a cystic membrane often dotted with

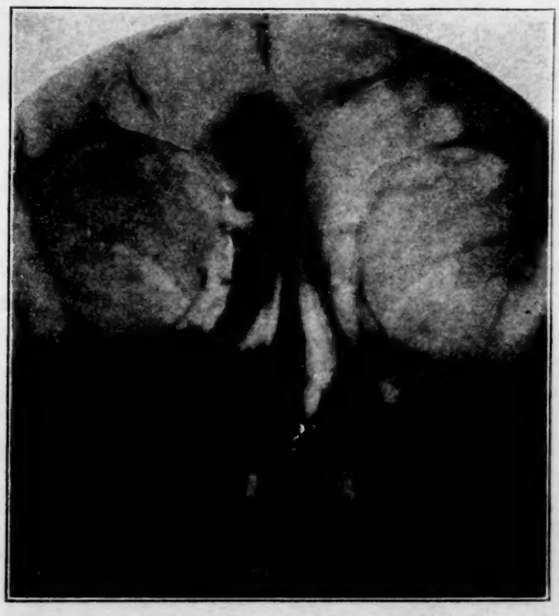

Fig. 3.—The roentgenogram was taken in the nose-chin position. The oil has extended from the antrum to the ethmoid area and a small amount shows in the frontal sinus. To be compared with figure 4.

small abscesses in its walls. It is these patients especially, suffering from some undetermined source of infection, that may be relieved by operation or saved from an unnecessary exploration of the sinuses (fig. 1). The type of operation may also be more accurately determined. If there is a generalized marked thickening of the membrane of the sinus involved, a radical operation would be chosen (fig. 2), whereas a filling defect confined to the floor of an antrum might yield readily to an intranasal window resection and curettement of the sinus floor.

My experience of almost routine use of opaque oils when roentgenograms have been indicated during the past four years has convinced me that the greatest practical value of opaque oils is in determining the condition of the antrums. And I believe that the future increasing use of the oils, except in very special cases, will be largely confined to the maxillary sinuses.

My reasons for the foregoing conclusions are these:

1. The antrum, because of its dependent position and relation to the teeth, is more frequently infected than any other sinus.

2. The filling of the antrum is easier to do and less difficult to read on the roentgenogram.

Fig. 4.—Same patient as in figure 3, approximately two minutes later in nose-forehead position. The rapid migration of oil to the frontal sinus between exposures should be noted. Pus must extend rapidly from the antrums to the ethmoids and frontals. This probably accounts for some of the frontal pain accompanying an acute infection of the antrum.

3. Contrary to the general teachings, ethmoid and frontal sinus infections are probably more commonly secondary to an infection of the antrum than the reverse; thus one is more often determining the primary source. Roentgenograms of the course of the oil leaving the antrum rather suggest this conclusion. With the head in the recumbent position it may be only a matter of one or two minutes from the time the oil leaves the antrum till it enters the ethmoid area and frontal sinus (figs. 3 and 4).

With these pictures in mind it is not difficult to imagine what must happen when a patient lies down at night with the antrum filled with pus. One may also thus account for some of the frontal pain that so frequently accompanies an acute antrum infection.

4. The frontal sinuses, because of their position and drainage, less frequently require surgical intervention

and more readily show pathologic changes on roentgen examination, with possibly the exception of mucoceles, than any other sinuses. Thus it is only in obscure cases in which surgical intervention is contemplated that opaque oils are indicated for further diagnosis.

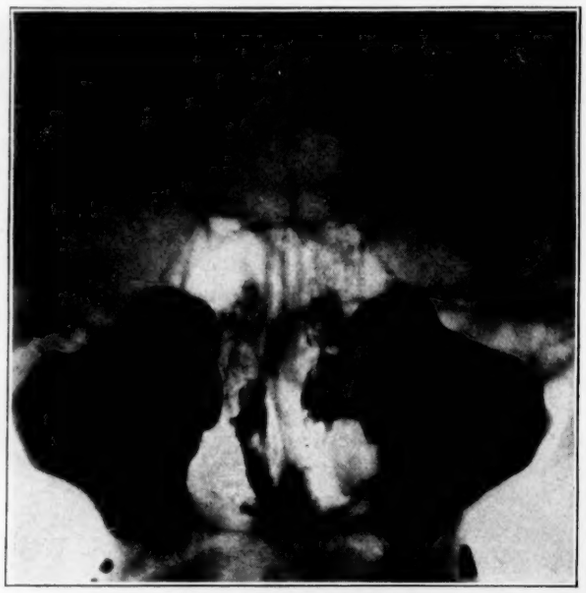

Fig. 5.—Iodized poppy-seed oil diluted 2 to 1 with heavy liquid petrolatum. The extremely heavy oil makes filling above the level of the ostium possible. Dry cotton is immediately packed in the middle meatuses and the patient sent two floors away for roentgen examination.

5. The sphenoids, which may be rather satisfactorily filled by the direct or displacement method, do not come up so often for diagnosis. Their condition can also be more nearly determined by the use of the nasopharyngoscope and by passing an applicator directly into the sinus, or even by enlarging the ostium for direct exami-

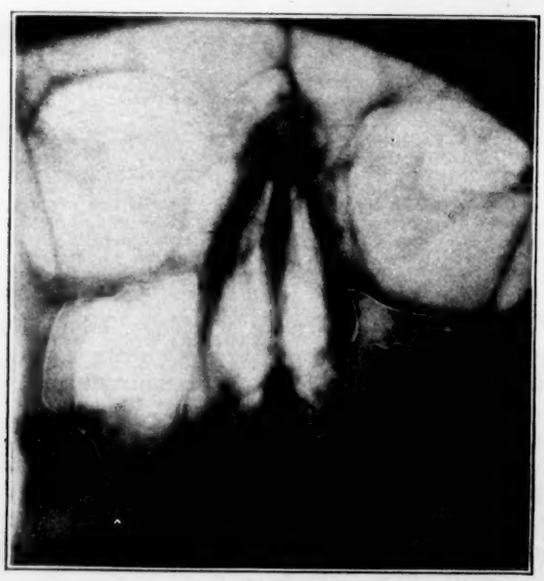

Fig. 6.—Prominent filling defect in a man, aged 48, one week after an acute coryza, with no pus on irrigation. Iodized oil was immediately injected. Two weeks later only the slightest thickening could be detected.

nation. Opaque oils here find their greatest value in determining the position and extent of the cavity.

6. The ethmoids, which have been so beautifully demonstrated by Dr. Proetz with a displacement filling, offer a number of technical difficulties which have discouraged many workers. Too often, it is found that no oil enters the ethmoid cells at all or enters only one cell, yet these cells cannot be condemned on these observations. Moreover, as Dr. Proetz has stated, the exact angulation must be maintained at the seventy-two hour reading as was used for the primary roentgenograms, thus offering a source of considerable error.

TYPE OF OIL USED

1. Briefly, iodized poppy-seed oil, 40 per cent, diluted with two parts of heavy liquid petrolatum, has given most satisfactory results. In this dilution it will cast a shadow equal to or greater than that of full strength brominized sesame oil.

2. Brominized sesame oil, full strength, is less viscous and undoubtedly has its advantage in displacement and insufflation methods, and in patients sensitive to iodine.

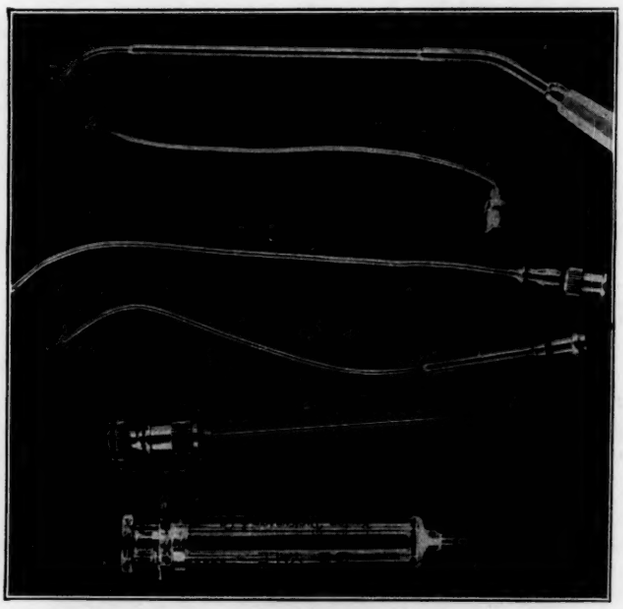

Fig. 7.—Instruments used with Luer fittings: (1) sharp cannula for anterior wall of the sphenoid sinus; (2) silver cannula for frontal with right angle Luer tip; (3) silver cannula for filling through mouth of sphenoid sinus; (4) steel cannula, 16 gage, for filling antrum through the middle meatus; (5) straight 17 gage needle for use in the inferior meatus, and (6) syringe.

3. Iodized rape-seed oil is a new American product which mixes readily with oil and casts an excellent shadow in a 50 per cent dilution.[5]

Iodism can practically be disregarded in the use of iodized oils in the foregoing dilutions. If the patient should be particularly sensitive to iodine the sinuses may be irrigated or suction used to remove the oil after roentgenography.

Iodized poppy-seed oil diluted with heavy liquid petrolatum offers a viscosity which is an advantage in antrum and sphenoid injections as it is slow in leaving the sinus, thus permitting fillings even above the normal ostium (fig. 5).

I do not practice irrigation prior to oil injections. However, it may be done as the water is displaced by the heavy oil, if done immediately after irrigation. If one waits twenty-four hours the lavage may produce some swelling of the sinus membrane, which would

5. It has not yet been found acceptable by the Council on Pharmacy and Chemistry.

displace the oil. For this reason I try never to use iodized oil within a week or preferably ten days after an irrigation.

Acute nasal infections may produce an acute swelling of the sinus membranes (fig. 6), as has also been demonstrated by Dr. Proetz in allergic reactions.

When possible, the antrums are filled through the normal ostium by means of a double curved 16 gage steel cannula (4, fig. 7). As this method is impossible in a number of cases a straight 17 gage needle (5, fig. 7) is used high in the inferior meatus. The small gage of the cannula and needle prevents the dripping of oil when the syringe is refilled. Any syringe of less than 5 cc. capacity is rather unsatisfactory.

While filling, the number of cubic centimeters is counted to determine the volume of the sinus. If an antrum holds only from 3 to 5 cc., one can be reasonably sure that there is something in the antrum that is taking the space that would ordinarily be occupied by the oil. On the other hand, if an antrum holds from 14 to

Fig. 8.—Side view of unusually large antrum in a male patient; capacity, 30 cc.

20 cc. and even 30 cc., as occurred in one of my recent cases (fig. 8), then one can be rather certain that the antrum must be a fairly normal one to hold so much fluid (fig. 9).

If a water solution is being used at a primary irrigation, I make it a practice to put the first of the solution in with a syringe and record the volume. Whether the antrum holds 3 cc. or 20 cc. is often an important diagnostic aid and may help to decide the course of further treatment or roentgen examination.

For direct filling of the frontal sinuses a small silver cannula with a Luer tip bent at right angles (2, fig. 7) is inserted. The patient is then placed in the knee-chest (fig. 10) or marked forward position (fig. 11) and the oil injected in one of these positions (fig. 12). Most frontal sinuses coming up for injection are obscure cases in which an anterior ethmoid or intranasal frontal operation has already been done. This greatly facilitates the insertion of the cannula.

When sinuses have been radically opened and require further study, the cavities may be packed with a thin strip of gauze soaked in full strength iodized poppy-seed oil.

For the sphenoids, only one side should be done at a time to prevent overlapping shadows. Both antrums, however, may be injected at the same time as the anteroposterior views will usually show any defect and the lateral views, although overlapping, can be read.

Fig. 9.—Side view of antrum in a male patient with history of a chronic bronchial cough; capacity, 24 cc. Both antrums held 24 cc. and did not show filling defects.

I have been experimenting with iodized poppy-seed oil (40 per cent), in cases of atrophic rhinitis. Everyone knows that iodine is not only a fair deodorant but seems to be rather effective in relieving dryness of the mucous membranes. Its combination with oil seems to lessen the disagreeable crusting.

The antrums are filled at intervals of one or two weeks with the iodized oil, which drains slowly into

Fig. 10.—Knee-chest position cannula (2, fig. 7) is first inserted and oil is injected through the right angle tip. The x-ray plate is next to the forehead. In this position gravity prevents the oil from leaving the frontal sinus.

the nose. In some cases oil is evident on lavage two weeks after its instillation.

It is yet too early to comment on its real value in this troublesome disease.

CONCLUSIONS

1. The use of opaque or iodized oils is an important step beyond the simple roentgenogram.

2. Iodized oils can be used as a routine in the antrums, with little additional effort, and whenever roentgenograms are indicated.

3. Their use in other sinuses may be confined to obscure cases in which surgical intervention is contemplated.

Fig. 11.—Patient sitting on a high stool with head bent well forward; filling as noted under figure 10.

4. For direct instillations, heavy petrolatum is used for dilutions to increase the viscosity.

5. Iodized poppy-seed oil, 40 per cent, diluted with two parts of heavy petrolatum, or iodized rape-seed oil diluted 50 per cent, and brominized sesame oil full strength constitute the opaque mediums of choice.

6. Iodized oils should be used immediately after irrigation or not at all for from seven to ten days, as swelling of the sinus membrane may follow within twelve to twenty-four hours after any irrigation.

7. Swelling of the sinus membranes may occur following an acute rhinitis, necessitating the delay of roentgen examination.

8. If water is being used as a primary irrigation, the first of the solution should be put in with a syringe and the volume recorded. Whether the antrum holds 3 cc. or 20 cc. is often an important diagnostic aid.

9. Frontal sinuses may be filled with the patient in the knee-chest position.

10. Sinuses previously opened may be studied by packing with a thin strip of gauze soaked in full strength iodized poppy-seed oil before roentgen examination.

11. Sphenoids should be injected on one side at a time to prevent overlapping shadows.

12. The two antrums may be injected at one time.

13. In atrophic rhinitis the antrums may be filled with full strength iodized poppy-seed oil, which seems to have a beneficial effect.

14. The use of stereoscopic views, with or without opaque oils, seems to offer some advantages.

559 Doctors' Building.

ABSTRACT OF DISCUSSION

Dr. Robert H. Fraser, Battle Creek, Mich.: While the author does not report on any examinations with the displacement or suffusion method, he has contributed greatly to the success of the injection method. I have made 1,200 observations, including 200 suffusions, and at present am making more suffusions of the anterior series in the prone position than injections. The advantages are the absence of intranasal manipulations of any kind. Regarding the incidence and importance of maxillary sinus disease as compared with ethmoidal disease, observers will differ. Chronic suppurative sinus cases are frequent in some practices, but in mine the mixed and hyperplastic sinus cases, involving many sinuses, with suppuration in perhaps some of them, are *the* problem and develop need for iodized oil. Hirsch's idea that the ethmoid is less commonly involved than the maxillary in the latter type of disease is not verified by American experience. In the majority of cases the maxillary sinus involvement comes late following ethmoid trouble, and the latter must receive attention along with the maxillary. The child with ethmoiditis should not be allowed to develop thickening in an antrum before many constitutional aids to recovery are applied. What membranes will swell and how much, as, for example, due to irrigation, is most interesting of all because more light is needed here. A thick membrane is not healthy. Traumatic swelling is about 3 mm. I have never seen a swelling in a really normal sinus due to a saline or an oil. Swelling due to allergy is more. Swelling due to transient bacterial infection is not great unless it is accompanied by chemical deficiency resulting in vasodilatation. Past disease, however, may leave fibrous membrane unable to swell even in response to trauma. If the sinus mucoperiosteum has been greatly swollen in the past, from the catarrhal type of disease

Fig. 12.—Chronically infected frontal sinus filled while patient was in the knee-chest position (fig. 10).

of Hirsch and Zuckerhandl (hyperplastic, mixed), it can swell rapidly and to a high degree. A rapid swelling of 7 or 8 mm. means definitely that there is hyperplastic nasal disease in the constitutional tendency. A chart of the variations should be made and standardized. The history comes first, however, but must be studied in the light of an appreciation of the many oddities of these diseases and their constitutional connections.

Dr. Samuel Iglauer, Cincinnati: I should like to mention one point in particular, and that is that not infrequently I have

been disappointed after taking these pictures and opening the antrum in not finding what I had expected. At first I was inclined to believe that when I saw a filling defect in the antrum there must be a polyp or cyst present; but on operating several days later, on more than one occasion I found a practically normal mucosa or one slightly edematous. I think Dr. Proetz, who unfortunately is not here, has explained this phenomenon. He has found in a certain number of allergic patients that when he filled the antrum, or attempted to do so, during an attack of vasomotor rhinitis, he would get a filling defect, and if he waited a week or two and filled the same antrum it was of normal size and contour. I think that factor must be borne in mind, and one must be sure that one is not dealing with an allergic patient. I am sure Dr. Goodyear is to be congratulated on some new ideas that he has introduced. One is packing the middle meatus to prevent overflow into the nose; and the second is his method of filling the frontal sinus. I do not quite agree that he can explain the pathology of ethmoiditis as secondary to the maxillary infection. I feel that the pus would not flow from the antrum into the ethmoids because I do not believe the secretion would enter the ethmoids if they contained air, and the whole theory of Dr. Proetz's method is to exhaust the air from the ethmoids in order to enable him to fill the ethmoids with iodized oil.

DR. HENRY M. GOODYEAR, Cincinnati: I am glad Dr. Fraser has been using iodized oil in the ethmoids. It is rather easy to put oil into the antrum, and if the indications are such that one feels that roentgenograms of the patient's head should be made, it is not much work to insert oil into the antrum, and at least two sinuses have been ruled out to begin with.

SUPRARENAL CORTICAL INSUFFICIENCY AND CYTOTOXIC CONTRACTION OF THE SUPRARENALS *

OTTO SAPHIR, M.D.
AND
HERBERT F. BINSWANGER, M.D.
CHICAGO

A disease of the suprarenals exists which is even rarer than tuberculosis of the suprarenals and may cause a clinical syndrome closely resembling Addison's disease. This disease is most commonly spoken of as atrophy of the suprarenal glands.[1] Brenner [2] calls it atrophy of the cortex; Roessle,[3] inflammatory atrophy. The use of such terms as "essential adrenal insufficiency" [4] signifies that the nature of this disease is not fully understood. In reviewing the literature, one gains the impression that there are apparently two entirely different diseases of the suprarenals leading to end stages which, on superficial examination at least, are confusing. Kovacs [5] and more recently Omelskyj [6] have differentiated strictly between changes purely inflammatory in nature and primary degenerative changes leading to necrosis and disappearance of the cortical cells. The inflammatory lesions of the suprarenals involve both the cortex and the medulla and are often brought about by tuberculosis. But other nonspecific inflammations or thrombosis of the suprarenal vein may lead to similar pictures. The term "locally contracted suprarenals" (oertliche Schrumpfnebennieren) is used to denote such changes, implying that the contraction is due to local causes and is not brought about by a systemic disease acting on the suprarenals. Since these changes, however, are always inflammatory in origin, the term "inflammatory contracted suprarenals" is perhaps less open to misinterpretations than the term "locally contracted suprarenals." Clinically such a case might present itself as Addison's disease provided that both medulla and cortex are markedly destroyed.

When primary degenerative changes occur, these involve the cortical parenchyma only and lead to necrosis of cortical cells. This necrosis is accompanied by a lymphatic infiltration but without apparent scar formation. Since the cortex alone is affected in such cases, they do not give the clinical picture of the classic Addison's disease but should (according to Kovacs and Omelskyj) be classified as suprarenal cortical insufficiency clinically, while the term "cytotoxic contraction of the suprarenals" is used for the pathologic lesions. Two cases of this type are presented here, on which a distinction in the nomenclature and nature of this disease will be based.

CASE 1.—*Clinical Examination.*—A woman, aged 42, came to the hospital complaining of transitory headache for many years which progressively grew worse and became more frequent. During the last six months she had noticed that the color of the skin had changed to a brownish yellow tint. She further complained of intense nervousness, which first manifested itself about five months previously. For the preceding five weeks she had suffered from nausea and loss of appetite. Over a period of six months she had lost 9 pounds (4 Kg.). The physical examination was essentially negative. No neurologic lesions could be found. There was a moderate secondary anemia. During the first seventeen days of her stay in the hospital the most outstanding clinical symptoms were belching, nausea, frequent vomiting, headaches and poor appetite. Fourteen days before the patient died a gradually increasing weakness was noticed. At that time an incontinence of the urinary bladder developed. A few days before death the patient was irrational at intervals. The weakness became much more pronounced. The accompanying table is offered to show the various blood pressure readings.

Blood Pressure Readings in Case 1

Date	Blood Pressure	Date	Blood Pressure	Date	Blood Pressure	Date	Blood Pressure
9- 4	106/78	9- 4	94/70	9- 4	92/66	9-17	82/54
9-17	78/54	9-21	82/60	9-21	92/64	9-21	92/68
9-22	94/68	9-23	84/64	9-25	92/78	9-26	98/68
9-27	82/64	9-27*	104/70	9-28	94/70	10-1	90/70
10-3	84/60	10-4	84/63	10-5	106/78	10-6†	74/56

* After injection of epinephrine.
† Shortly before death.

The blood pressure varied from 74 systolic and 56 diastolic shortly before death to 106 systolic and 78 diastolic; the majority of readings were above 90 systolic. A chemical examination of the blood which was made during the first week of the hospitalization of the patient revealed 60 mg. of dextrose per hundred cubic centimeters and a nonprotein nitrogen content of 40 mg. The basal metabolic rate was—8.2. Six weeks after admission the patient relapsed into coma and died. The clinical diagnosis was Addison's disease.

Pathologic Examination.—The autopsy was performed about two hours after death. The body was well developed but poorly nourished. The skin had a brownish, bronzelike appearance. The pigmentation was most marked about the abdomen, back, buttocks and thighs. The lymph nodes throughout the body were enlarged. They were soft in consistency and showed on cut section simple hyperplasia. The serous cavities presented no abnormalities. The lungs were the seat of a moderate

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* From the departments of pathology and of medicine of the Michael Reese Hospital.

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5. Kovacs, W.: Zur Nebennierenpathologie, Beitr. z. path. Anat. u. z. allg. Path. **79**: 213 (Feb. 15) 1928.
6. Omelskyj, E.: Zur Nebennierenpathologie, Virchows Arch. f. path. Anat. **271**: 377, 1929.

emphysema. There were a few consolidated portions throughout both bases. The heart was small and weighed 220 Gm. The liver, kidneys and spleen were essentially normal. The gastro-intestinal tract showed no changes. The brain was anemic, but neither gross nor histologic lesions were demonstrable. Both ovaries were of about normal size. On section they offered a few small cystic spaces containing clear, amber fluid. Tubes and uterus were normal. The thyroid was somewhat smaller than normal, of firm consistency, and showed a smooth surface. On cut section many minute colloid granules were seen throughout. The parathyroids appeared normal. The thymus could not be found. It was replaced by fat tissue. The hypophysis was normal in size and shape. There were no signs of inflammation or tumor. The pineal body showed a few calcified granules; otherwise there were no changes. Both suprarenals were very small but of about normal consistency. The left suprarenal weighed 2 Gm. The thickest portion measured 2 mm. in diameter. The capsule was thin and gray. Grossly, no intact cortical tissue was recognizable. The capsule seemed to enclose only the medulla. A few places showed on cut section bright yellow dots and streaks indicating remnants of cortical tissue. The right suprarenal weighed 3 Gm., the thickest portion measuring about 3 mm. in diameter. The cut section showed a yellowish, interrupted circle barely visible between the capsule and the medulla. The medulla of both suprarenals was reddish gray but no gross changes were demonstrable. No accessory suprarenals were found.

Fig. 1 (case 1).—The left suprarenal, natural size.

Histologic Examination.—Both suprarenals were cut into twelve blocks; ten blocks were preserved in a diluted "solution of formaldehyde-U. S. P." (1:10), and two in alcohol. Hematoxylin-eosin sections of the left suprarenal showed in some of the fields the capsule and medulla without any recognizable cortex. Some of the sections revealed a few very large cortical cells with a light stained cytoplasm and an eccentrically situated vesicular nucleus. Some of these cells were twice or three times as large as normal cortical cells. The cells were separated by a lymphocytic infiltration and a few stroma fibers consisting mainly of walls of small capillaries. Other fields offered only one or two large cortical cells, while others again showed several of them arranged into small groups. In some of these groups the cells assumed the form of small cords. These groups seemed regenerated islets of cortical tissue. None of the sections, however, showed the arrangement into the typical three different layers of the normal cortex. Some of the cells contained a varying amount of a yellowish pigment, while others did not show any trace of pigmentation. Most of them were the seat of a marked cloudy swelling and vacuolar degeneration. The boundaries of many cells appeared very indistinct. Some cells showed no nuclear staining. A small amount of connective tissue was found throughout the cortex combined with a lymphocytic infiltration, but there was no actual scar formation. However, it is more likely that the stroma merely appeared denser because of the loss of the parenchyma and because of the fact that the blood capillaries were drawn closer together. Many distended blood vessels were seen. The medulla appeared smaller than normal and showed a few lymphocytes scattered throughout but otherwise no changes.

Sections that were stained according to van Gieson's method showed many connective tissue fibers throughout the capsule, while the cortex contained only a moderate number of fibers. With the aid of an elastic tissue stain (Orcein), the differentiation between cortex and medulla could easily be made out, the latter containing a network of many elastic fibers. The presence of elastic fibers in the normal medulla was especially emphasized by Kovacs. In frozen sections, which were stained with sudan III, many fat globules were demonstrable throughout the cortical cells. Unfortunately the suprarenals were not hardened in chromic formaldehyde immediately. The chromic reaction, therefore, did not give very good results. The affinity of the medullary cells to basic stains, however, was easily demonstrable.

The right suprarenal showed practically the same changes. There were more cortical elements present in the form of regenerated islets surrounded by a lymphocytic infiltration. But most of these cells were of foamy cytoplasm and apparently degenerated. A few fields showed, in addition to lymphocytes, blood corpuscles within the tissue. The medulla was of the same appearance as that of the left suprarenal.

Sections of the thyroid presented many atrophic follicles. An abundant amount of lymphocytes was found throughout the slides. Sections of the lymph nodes showed a pronounced simple hyperplasia. The remainder of the organs showed no histologic changes of note.

Summarizing the gross and microscopic observations, we have described a case in which there was a marked diminution in the size of the suprarenal glands caused by an almost complete absence of the cortical structures with a relatively well preserved medulla. Aside from this, the only other changes noted were a generalized hyperplasia of the lymphatic apparatus and a moderate degree of atrophy of the thyroid gland. The histologic examination of the suprarenals revealed as the main lesion an almost complete disappearance of the cortical parenchyma, while the supporting stroma and blood vessels remained unchanged. There was no scar tissue nor any other evidence of chronic inflammatory changes. The lesions were found bilaterally. Some regeneration of the cortical cells was evident. These regenerated cells were larger than normal but did not show the characteristic arrangement into the three different layers found in normal suprarenals. These regenerating cells also seemed damaged, as indicated by the marked cloudy swelling and vacuolar degeneration.

Fig. 2 (case 1).—Cortex of suprarenal: remnants of large regenerated cortical cells; lymphocytic infiltration without new formation of connective tissue: iron hematoxylin-eosin preparation; × 260.

Whatever had caused the changes resulted in a specific and selected destruction of the cortical cells.

Kovacs believes that the cortical cells are destroyed by a specific toxin, a cytotoxin in his opinion, whose nature is obscure but which may be liberated by abnormal metabolism rather than an infectious disease. The toxin is carried to the suprarenals by the blood stream, leading to mandatory involvement of both suprarenals. The progressive nature of this disease, which is shown

by the degenerative remnants of regenerated cortical cells and by the final death of the patient, indicates that the cytotoxin is liberated either continuously or at intervals over an appreciable period of time. At present it is not known under what pathologic conditions such cytotoxins are formed.

The bilateral involvement of the suprarenals in this case, the selected destruction of the cortex combined

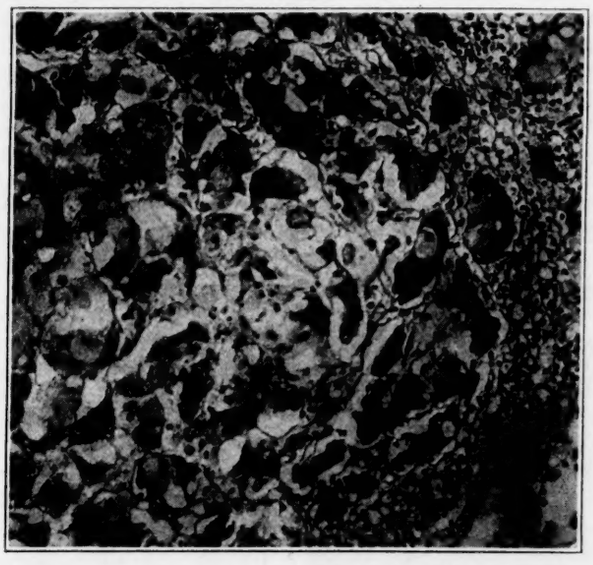

Fig. 3 (case 1).—Cortex of suprarenal: groups of degenerated cortical cells without the characteristic arrangement; iron hematoxylin-eosin preparation; × 120.

with apparently normal medulla, and the absence of scar formation in the suprarenals fulfill the requirements of Kovacs, and the case, therefore, falls in the classification of cytotoxic contraction of the suprarenals.

Marine [7] has raised the question whether the changes of the suprarenal cortex of these cases are similar to the ones found in the thyroid in exophthalmic goiter. It might be possible, in his opinion, that these changes signify a state of exhaustion of the suprarenal cortex which must have been preceded by a state of overactivity.

Clinically, the patient presented some features that were characteristic of Addison's disease; namely, the bronze skin and gastro-intestinal disturbances. The asthenia, so characteristic of Addison's disease, developed late, apparently during the hospitalization of the patient but was not obtained in the anamnesis. The blood pressure, even though low, yet reaching 106 systolic, 78 diastolic, was not quite low enough to be typical of Addison's disease. Kovacs and Omelskyj emphasize that in clinical cases of Addison's disease both cortex and medulla are involved. They classify their cases as insufficiency of the suprarenal cortex in preference to Addison's disease because the characteristic low blood pressure and asthenia were not present. It is a question whether our case could not, for the same reasons, be classified clinically as cortical insufficiency of the suprarenals in contradistinction to Addison's disease. At the present time this question cannot be settled. Cases such as the one reported are rare and many of them have an insufficient clinical history and few blood pressure readings, which makes it difficult to analyze them. Even in Kovacs' case detailed clinical observations are lacking, and only one blood pressure determination is recorded.

Animal experiments [8] showed that the cortex of the suprarenal is indispensable to life while the medulla can be destroyed without apparent harm to the animal. Rogoff and Dominguez [9] have shown that after bilateral suprarenalectomy the blood pressure is not affected. These facts make it difficult at first to understand why, as Kovacs and Omelskyj maintain, the typical Addison's disease has its pathologic equivalent in destruction of both cortex and medulla. One should, however, guard against drawing too close a parallel between an acute animal experiment and pathologic changes which are end-stages of chronic lesions, especially since the typical Addison's disease cannot as yet be produced experimentally. Only exact clinical observations combined with close correlation of the autopsy observations may make it possible in the future to distinguish clinically between cortical insufficiency of the suprarenals, which often has its pathologic equivalent in cytotoxic contraction of the suprarenal cortex, and Addison's disease. In cases, therefore, which present themselves clinically not as pure Addison's disease, and which show as the outstanding symptoms only pigmentation and gastro-intestinal disturbances, one should at least consider the possibility of cortical suprarenal insufficiency occurring as a result of cytotoxic contraction of the suprarenals.

CASE 2.[10]—*Clinical Examination.*—A white woman, aged 36, was admitted to the hospital with the complaint of nausea and of pain on the right side. The pain came on suddenly, had persisted one day, and began to radiate all over the abdomen. The patient had had three similar attacks but none was quite as severe as the present one. She always had been well and had not suffered from gastro-intestinal disturbances or weakness.

Fig. 4 (case 2).—Cortex and medulla: small groups of old cortical cells, lymphocytic infiltration throughout the cortex, and apparent normal medulla; iron hematoxylin-eosin preparation; × 120.

The physical examination revealed a peculiar bronze color of the skin which, as the patient stated, had been present for some time. She could not state exactly how long ago the pigmentation developed. The only important clinical observation

7. Marine, David: Personal communication to the authors.

8. Stewart, G. N.: The Adrenal Glands, Arch. Int. Med. **43**: 733 (June) 1929.

9. Rogoff, J. M., and Dominguez, R.: Effect of Double Adrenalectomy on Systolic Blood Pressure of Nonanesthetized Rabbit, J. Metabolic Research. **6**: 141, 1924.

10. We are indebted to Dr. Carl Henry Davis of Milwaukee and to Dr. William Thalhimer for the data in this case.

was a tenderness in the right lower quadrant with some rigidity. The blood pressure reading on admission was 110 systolic and 60 diastolic. The clinical diagnosis was appendicitis. An appendectomy was performed the same day, with the use of ethylene as an anesthetic. The operation was uneventful. The appendix was small and adherent to the broad ligament. Histologically it was the seat of a chronic obliterative appendicitis.

Two days after operation the patient became stuporous and lethargic and voided only a small amount of urine. Four days after the operation, she began to talk irrationally, lapsed into unconsciousness and died shortly afterward.

Pathologic Examination.—The body was poorly nourished but well developed. The bronze color was noted throughout the skin, especially on the face. The field of operation showed no acute inflammatory changes. There was no evidence of peritonitis. The heart and lungs were normal. The visceral organs appeared free from pathologic changes. The lymph nodes throughout the body were enlarged and soft in consistency. On cut section they showed a simple hyperplasia. Neither suprarenal, at first, could be found. An extensive search, however, revealed a small mass of tissue in both retroperitoneal regions above the kidneys, still showing the shape of suprarenals. No accessory suprarenals could be found.

The histologic examination of the small mass of tissue found above the kidneys revealed suprarenal structures. Hematoxylin-eosin preparations showed throughout the cortex large nodular areas consisting of an apparent new formation of cortical cells. These cells were very large and showed in part small cordlike structures and in part no particular arrangement. Their cytoplasm was markedly granular in appearance. Some of the cells contained large vacuoles throughout the cytoplasm while others had varying amounts of a brownish pigment. Many of the cells were faintly stained, showing the cellular outlines indistinctly, but the coherence of the cells could still be made out. All of the nodular areas were close together with hardly any dividing stroma. Only occasionally cells were found in groups of four or five with a moderate amount of stroma between them. Some of the sections showed a few lymphocytes and large phagocytic cells. There was no connective tissue or any hyaline material or scar tissue. The normal arrangement of cortical cells in three different layers could not be made out. The medulla was normal in size. The medullary cells were large and apparently unchanged. Few lymphocytes were seen in the outer portions of the medulla close to the cortex. The chromophil reaction could not be obtained because the tissue was hardened in formaldehyde. The affinity of the medullary cells to basic stains, however, was clearly demonstrable. Outside of small blood vessels, throughout the cortex and medulla, a moderate number of red blood cells were seen. The fat stain (sudan III) showed a large amount of lipoids in the cortical cells. The capsule was fibrosed but showed only an inconspicuous lymphocytic infiltration.

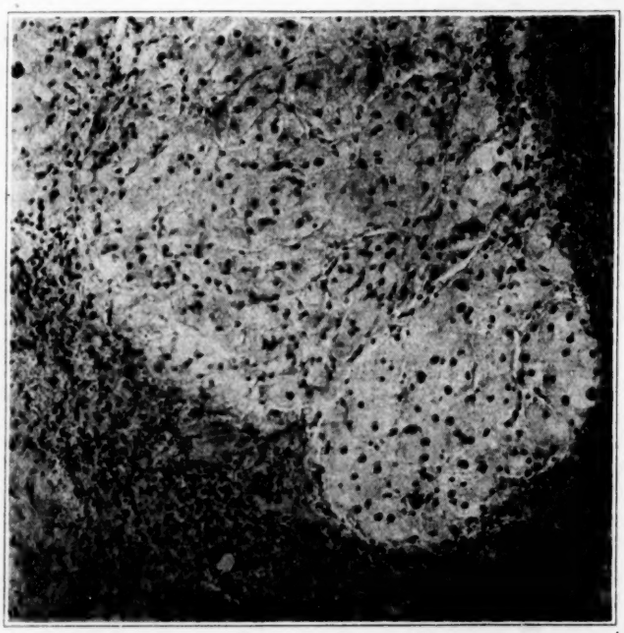

Fig. 5 (case 2).—Cortex and medulla: large regenerated islets of cortical cells; iron hematoxylin-eosin preparation; × 120.

The second case showed the disappearance of the normal suprarenal cortex with marked regeneration of the cortical cells assuming the forms of nodules; but most of the cells were the seat of marked degenerative lesions and necrosis. The medulla apparently was not affected. Throughout the cortex a few lymphocytes were found. Following Kovacs' classification, we must consider the changes as typical of cytotoxic contraction of the suprarenals.

If we compare the microcopic observations in the two cases it is evident that the changes of both suprarenals are essentially identical. In the first case, however, the changes were much more marked. Many fields showed only a few remnants of cortical cells which were separated from one another by a stroma showing dilated vessels and a lymphocytic infiltration. There was evidence of regeneration but many fields revealed only remnants of regenerated islets of cortical cells. The second case showed much more cortical tissue. There were many more large regenerated islets of cortical cells, many of which still showed the cell outlines clearly and were connected with other cells. The histologic picture of both suprarenals explains why the first case with far advanced lesions in the suprarenal cortex gave a clinical picture which could be interpreted as chronic insufficiency of the suprarenal cortex and why the second case with less severe lesions in the cortex showed, up to a few days before death, no clinical symptoms of suprarenal insufficiency with the exception of pigmentation.

Clinically, case 2 is interesting because of the sudden death shortly after appendectomy in an apparently healthy person. The autopsy revealed that death was due to the changes in the suprarenals. The only clinical observation that could be brought into correlation to these lesions was the pigmentation of the patient. No accurate data as to the duration of the pigmentation were obtained. Furthermore, no attempts were made to ask specifically for signs of asthenia. Nausea, of which the patient complained, was referred clinically to inflammatory changes of the appendix. It was pointed out in the anamnesis that the nausea developed only one day before the patient was admitted to the hospital. The blood pressure just before the appendectomy was 110 systolic and 60 diastolic. It is, however, fair to assume that neither asthenia nor gastro-intestinal disturbances, if at all present, were marked because otherwise they would have been easily obtained in the case history. The marked regeneration of the cortex and the surviving old cortical and medullary cells prevented the appearance of clinical signs of suprarenal insufficiency, with the exception of the skin pigmentation. It seems, however, as if following the operation the remnants of cortical tissue became insufficient, as indicated by the marked cloudy swelling and vacuolar degeneration of the cortical cells.

According to Marañon, "the prognosis and duration of Addison's disease depends on the appearance of the pigmentation. If the latter is an early symptom, the duration is long and the prognosis seems relatively

11. Marañon, G.: L'insuffisance surrénale primitive et secondaire, Rev. franç. d'endocrinol. **6**: 277 (Aug.) 1928.

good. Our case showed pigmentation as the only clinical evidence of lesions of the suprarenals. If one may assume, from the histologic picture, that eventually there would have developed other symptoms of Addison's disease or of chronic cortical insufficiency, then the early pigmentation would point to a long duration and good prognosis.

Cases of sudden death following operation which show at the autopsy table marked destruction of the suprarenals are rare but do occur. Hornowsky [12] reported two cases falling in this group. One of the patients dying shortly on removal of carcinomatous nodes in the inguinal region showed both suprarenals consisting almost entirely of scar tissue. The patient had never shown symptoms of Addison's disease. Zimmerman [13] published reports of two cases of sudden death following cesarean operation. Both cases showed at the autopsy a marked atrophy of the suprarenal medulla. Whether or not the cortex was also involved in Zimmerman's cases cannot be stated because of the complete lack of histologic description and diagnosis. Huebschmann [14] described a patient who was apparently in perfect health and who suddenly became unconscious and died the same day. At the autopsy a brownish color of the skin and buccal membranes was noted. Both suprarenals were much smaller than normal and had a granular surface. Histologically they showed marked atrophy with some inflammatory changes. Marchand [15] reported a case of sudden death after an operation for perityphlitis. The patient, who had had no clinical symptoms of Addison's disease, showed at autopsy a complete caseation of both suprarenals. Omelskyj also mentions that marked changes of the suprarenals might remain clinically silent until they give rise to a sudden illness leading to death a few days afterward.

The death of our patient, which must be interpreted clinically as the result of suprarenal insufficiency, was apparently brought about by the severe degeneration of the remaining cortical cells. Whether the demand for the secretion of the suprarenal cortical cells after the operation was too great or whether the operation itself was responsible for the sudden loss of function of the suprarenal cortical cells cannot be decided. In the final analysis, we believed that the death was due to acute cortical insufficiency. It was pointed out previously that the cloudy swelling and vacuolar degeneration was very pronounced throughout the cortical cells. Not taking into consideration the physiologic importance of the cortex but merely considering the histologic changes, we believe that this case should be classified clinically as one of acute cortical insufficiency of the suprarenals which pathologically showed changes characteristic of early cytotoxic contraction of the suprarenals.

SUMMARY

A clinical and pathological study of two cases of suprarenal cortical insufficiency was made. One case, clinically diagnosed as Addison's disease, showed changes which histologically are similar to the ones found in cytotoxic contraction of the suprarenals (Kovacs). An analysis of this case revealed that the blood pressure reached 106 systolic and 78 diastolic and that the asthenia developed only shortly before the patient died. A possible clinical differentiation between Addison's disease and cortical insufficiency of the suprarenals may be made. The second patient, who died shortly after an appendectomy, showed similar lesions but much less marked. There were severe degenerative changes throughout regenerated cortical cells. Clinically, the only symptom that could be referred to suprarenal lesions was a diffuse pigmentation of long duration. The sudden death of the patient was attributed to an acute incompetence of the regenerated cortical cells following the operation.

12. Hornowsky, J.: Zwei Todesfälle infolge Nebenniereninsuffizienz, Virchows Arch. f. path. Anat. **215**: 270, 1914.
13. Zimmerman, R.: Ueber ploetzliche Todesfaelle bei Atrophie des Nebennierenmarkes, Monatschr. f. Geburtsh. u. Gynäk. **56**: 259, 1921.
14. Huebschmann: Beitrage zur pathologischen Anatomie der Nebennieren, Beitr. z. path. Anat. u. z. allg. Path. **69**: 352, 1921.
15. Marchand, in discussion on Luksch: Die Veraenderungen der Kaninchennebenniere nach Diphterietoxin Injection, Verhandl. d. deutsch. path. Gesellsch. **14**: 136, 1910.

SPECIAL PSYCHIATRIC PROBLEMS IN CHILDHOOD *

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First of all I should like to restate the topic for discussion as "To whom does the health of childhood belong?" The separation of mental health and physical health is a residual of that dark age in the history of medicine when a human organism was divided quite neatly into mind and body. Mind and soul were considered to be the concern of teacher and clergy; body—or everything below the eyebrows—belonged to the physician. It has taken the medical profession decades to realize that a human being functions not in segments of mind and body but as a finely integrated organism; that every instinct and its accompanying emotion affects every cell in the body, making blood circulate faster or slower, gastric juice increase or decrease, glands of internal secretion function or dysfunction. Internal medicine now makes the statement that at least 40 per cent of men and women who consult physicians for a wealth of distressing bodily sensations are victims of poor health associated with unwholesome states of mind. How do they get into this condition? The answer is in every instance an individual one based not on the precipitating factor of a romantic misadventure or a financial loss but on lifelong poor habits of meeting strains—emotional, intellectual, physiologic. In the study and treatment of this large percentage of adults in poor states of health, the internist has been driven inevitably back to the childhood story of these patients, asking himself again and again whether a better start in life would have averted the grown-up discomfort. By virtue of the same spirit of intelligent inquiry into the hygienic possibilities of the first ten years of life the profession is conducting an increasingly successful campaign against bony deformities, cardiac disease, tuberculosis and syphilis. Hygiene, then, as the science of health must concern itself with every factor contributing to the growth, development and personal welfare of a human being. Mental hygiene is an aspect of hygiene that takes a genetic interest in the behavior of an individual, dealing with assets and liabilities of life which may or may not develop into pathologic behavior. With this formulation of mental hygiene it would seem that the mental health of childhood belongs to no one group of society or branch of departmental knowledge. The mental health of childhood should be the active concern and intelligent interest of physician, teacher, parent, psychologist, clergyman, psychiatrist, social worker, public health nurse, and every other

* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

constructive force of the social organization that comes in contact with the welfare of children.

MENTAL HEALTH OF CHILDHOOD

This view of mental hygiene and its place in the field of child health is, I realize, quite at variance with ideas about the subject held by all sorts of professional people. Dr. Crothers has kindly put at my disposal letters from some 250 pediatricians, psychiatrists and psychologists of note in different parts of this country to whom he propounded the question being discussed today. In reading these replies one is reminded of a remark of Margaret Fuller, that famous New England iconoclast of the seventies, who once said in a lucid moment, "I don't know where I'm going. Follow me." The usual psychologist's idea of the mental health of childhood has been admirably set forth by Dr. Anderson:

> Mental hygiene lies predominately in the field of education rather than in the field of either psychology or medicine since the primary purpose of education is to prepare individuals to meet the problems of life. While education should receive all the assistance it can from both psychology and psychiatry, nevertheless it is the discipline which has been set up by society for the training of individuals and which has both the prestige and the historical background for work in this field. It does not seem to me that society can or will establish a separate discipline independent of the schools for the training of the general run of individuals. Psychiatry will continue to deal with abnormal individuals. In psychiatry, in contrast with psychology, the primary emphasis is placed upon the treatment and care of the individual who deviates to a marked degree from his fellow men. Any science considering abnormal phenomena is very largely based upon a study of individual cases or variations from the normal rather than upon basic or common trends. . . . The control of mental hygiene is not now in medical hands, nor will it ever be . . . . To say that physicians are to assume complete control of the mental hygiene field is to say that physicians are going to control society. It seems to me that the interests of the physician in the field should be scientific rather than propagandistic, and that his purpose should be to formulate correct data and principles rather than to embark on a general mission of the propagation of a faith.

Evidently in the mind of the psychologist the mental health of the child is synonymous with the intellectual ability of the child, and education is considered as an intellectual discipline. The failure of the child to measure up to this discipline is considered an educational matter. As a matter of fact, the more childhood is studied in an attempt to interpret behavior rather than to judge conduct, the more convincing it is that the mind of the child is the whole expressive activity of the child. Behavior, or mind, includes not only the intellectual faculties—memory, reasoning, judgment—but a wide range of other activities—emotions, cravings, desires, instincts, composed partly of inborn tendencies and partly of habits of thinking and feeling and acting acquired from training and environmental influences. The busy teacher of a crowded classroom has little time to talk with parents, and she has no ambassador to send into the home. When school nurses are in the ratio of one nurse to every 3,000 school children in cities of more than 30,000 population, teachers cannot count on the help of school nurses in interpreting the behavior problems of the classroom. Consequently the teacher is obliged to deal with the restless, irritable, explosive, stealing child as an offender rather than as a maladjusted or misfitting individual. That is, she is obliged to use in treatment the trial and error method of finding something that will stop the annoying behavior—scolding, keeping in at recess, sending home or to the principal's office. If these methods do not work, the child is apt to be called incorrigible. In other words, education as a discipline treats the offense (or delinquency), not the offender (or the delinquent). Teacher, parent, physician, psychologist, social worker and school nurse need to get into the habit of thinking of a child's misfitting or maladjustment as a symptom of a wide range of causal factors. These causal factors go far beyond the realm of education as a discipline. They go into the home with its economic strains, its social strivings, its harmonies and disharmonies of parental relationships; they go into the neighborhood and its opportunities for recreation and social contacts; they go into the office of the family physician and his associations with the intimacies of family life. Child health and its behavioristic aspects projected against such a background of matters for consideration makes it impossible, it seems to me, to think of mental hygiene as "propaganda" and "a faith," or "a separate discipline to be set up by society independent of schools to train individuals." The more frequently one thinks of behavior as an aspect of health, and health as a component of behavior, the slower one will be to divide human beings simply into normal and abnormal, consigning the latter to one sphere of departmental knowledge. It is as reasonable to claim that the physician who treats disease cannot intelligently study genetic aspects of health as to maintain that the psychiatrist's province is only that of abnormal individuals.

The pediatrician's concepts of mental hygiene as indicated by the questions sent out by Dr. Crothers seem to indicate two general views as held by what might be called the nonprogressive and the progressive group of practitioners. The former feels that it has been paying enough attention to the mental health of childhood, and that the mental hygiene movement is a passing fad with which it does not wish to have any alliance. To this group of physicians mental health of childhood concerns itself chiefly with whether the child is feebleminded. As one physician puts it, "Entirely too much fuss is being made about defective children. I've always recognized them. Nobody can cure them." Then there are the stock phrases and stock prescriptions for "nervous" children. "Wait till puberty and she'll outgrow it." "He's a nervous, high-strung boy. Take him out of school for a year or two. Don't cross him."

The progressive group of pediatricians realizes that the mental hygiene movement aims to study the behavioristic growth and development of a child in the same intelligent manner that preventive medicine is studying his nutrition and metabolism. But progressive pediatrics finds itself a bit puzzled concerning how to go about this thing, and who shall do it. It asks whether mental hygiene is an attitude of mind or a technic. If it is a technic, should another technician be added to the office staff or should the child be sent to a psychologist or psychiatrist for treatment? Is there something so complex and mysterious about the mental health of childhood that a psychiatrically intelligent physician with an honest interest in the matter could not handle it? The answering of these questions is not easy because of just such unfortunate disagreements as I have referred to as existing between authorities in the branches of science devoted to the study of behavior. Not only do psychology and psychiatry disagree as to their respective provinces in the field of behavior, but there are various schools of psychology and schools of

psychiatry so insistent on featuring some one ingredient of behavior that the larger issue of the behavior problem of the individual child becomes almost obscure. Mental hygiene is not a technic with which the pediatrician can equip his office like x-rays and basal metabolism. It is an attitude of mind that takes a genetic interest in the behavior of a child, for example, with reference to its constitutional endowment (biologic and psychologic) and what will be apt to give native endowment its best chance of development.

Such an attitude of mind calls for several prerequisites: First, it necessitates willingness on the part of the physician to have time and patience to talk with mothers and often fathers about the setting of home and school in which any given behavior problem occurs. From time immemorial physicians have done this, and even in this period of busy specialization some of the best mental hygiene I know of is daily practiced by pediatricians. Second, granted an honest desire to understand the patient better, is needed a knowledge of some of the practical causes of individual childhood misfitting that result in varying degrees of poor mental health beginning in childhood and going on through adolescence, frequently culminating in all sorts of nervous instabilities in maturity.

COMMON CAUSES OF CHILDHOOD MISFITTING

Among the strains commonly responsible for so-called badness and nervousness in children are the following:

1. Discrepancy between the child's intellectual ability to grasp and correlate the demands of home environment and school program with what home and school expect of a child of his age is a common cause of childhood misfitting. It can be discovered by the frequent and wise use of the Binet-Simon intelligence test and educational group tests that estimate whether a child is able to do the grade work to which he is assigned. The day is past when parent, teacher or physician can say offhand to a lagging boy or girl, "You could do it if you only tried hard enough." Psychologic science can estimate with a reasonable degree of certainty whether this child can or cannot accomplish what is expected of him. Unfortunately, our educational discipline does not adequately weed these children out and provide programs suitable for their limitations. These mentally retarded boys and girls get into junior high school and even further, and go to pieces trying to do sixth, seventh and eighth grade work with the intellectual equipment of 9 or 10 years. Now, a child who is forced to follow a program beyond his intellectual ability is bound to react with "nerves" or truancy, or stealing, just as a foot shod with an ill fitting shoe develops pathologic conditions of skin and joints. If a child's body is healthy the average medical mind leaves school placement to education, forgetting that educational mismanagement can occur in even the best of private schools. It is this 25 per cent of mentally retarded school children who, growing to adolescence and maturity, clog the wheels of dispensaries, juvenile courts, correctional institutions, and social agencies dealing with chronic dependence.

2. A child suffering from physical conditions seriously affecting nutrition, locomotion, eyesight, hearing or speech is recognized by all as behavioristically handicapped, but here again are mental hygiene problems that involve something more than making allowances for the disability. There is the tendency to progressive sensitiveness, the feeling of discouragement over tedious processes of treatment and inadequate opportunities for schooling, and always the increasing realization that he must be limited in what he can do for a livelihood and must be content to accept any remuneration for services that society sees fit to offer him. Psychology teaches that the physically handicapped person is poor reconstructive material because he is lazy and has no ambition. How much of it is due to the way he is treated?

3. A poor start in habit training during preschool years is another common cause of so-called bad and nervous children. No other member of society has such a good chance to start young mothers right in one of the most important features of mental health as does the physician. Regularity of food and sleep and excretory habits is of great importance, but equally so is the establishment of good habits of managing the emotions of fear and anger, the desire to be the center of attention, the cry to get what one wants. How often one hears the mother of a primary school child say, "You see I've always let him have his own way, because my doctor said he was a temperamental child and we must not cross him." She may be misrepresenting the doctor, and yet one meets not infrequently a colleague who has told the parents of an intelligent 13-year-old boy who has been stealing since he was 8 years old that they must not make an attempt to correct the habit because John Jr. is suffering from a polyglandular disturbance of which the Johns Hopkins pediatrics department fails to discover a trace. Or one meets another colleague bringing a tantrum-throwing, breath-holding girl of 5 with the story that this is the one mysterious case in which he has not been able to cure these characteristics by supplying sufficient calcium to the organism. Nursery schools, habit clinics and prekindergartens throughout the country are doing their best to give parents education in starting infancy and early childhood with a wholesome set of habits of emotional control. It does seem a pity that their influence is counteracted by many a physician who considers all this "the bunk."

4. Another source of individual childhood strain is to be found in unwholesome social conditions (economic strains, overcrowded living arrangements, broken homes, parental disharmonies, discrepancy between parental ambitions and child capacities). Here are matters that one accepts in theory, and yet fails so often properly to evaluate in given child cases. Getting at these facts takes time and patience and tactful questioning of child and mother. When facts are elicited, their treatment lies in how much parents are able to grasp and how much they are willing to accept. It is one thing to get them to carry out medical treatment of sun baths and diet; it is another to get them to modify their attitudes toward each other and toward life for the sake of a child who is suffering from such things.

A 12-year-old girl in whom the physical examination was persistently negative except for a marked degree of visceroptosis offers a case in illustration. She had had an appendectomy six months before and she complained of fatigue and lack of appetite. The physician advised her staying out of school for a year. Four months later she opened a telegram for her mother announcing the death of an aunt. The mother collapsed at the news; the child began to tremble and cry, and then vomiting started. Obviously there is much more to this family situation than meets the eye. The getting of this child to retain food, to gain in weight, and to get out of bed is simple compared with the treatment of the

family situation to which she must return. Why should this child break down and her sister remain untouched by the domestic strain? Here is a child who has a temperamental endowment of such a nature as to predispose her to a serious break like this. She has always been quiet and contained and has never expressed an emotion of fear or like or dislike.

5. The temperamental equipment of childhood is a matter that we can all do well to study and not so often take for granted. Study of the adult breaking down nervously in later life is teaching us a great deal about childhood personalities that stand strains of life poorly and well. There is what is called the neuropathic constitution—an individual with good intellectual equipment and no disease of body, but with an organism whose nervous system seems put together the wrong way—autonomically speaking. Enuresis, night terrors, eczema, stammering, easy vomiting and tics are childhood forerunners of hay-fever, bronchial asthma, mucous colitis, angioneurotic edema of adolescence and maturity that are struggled with so unsuccessfully. Here are children who fatigue easily and yet have abundant energy. Teacher and parents tend to feature their precociousness and advise skipping grades and study in summer school for advanced credit, adding music lessons and a strenuous summer camp to a year overcharged with activity.

Another unfortunate temperamental equipment is that of the odd, quiet, seclusive, stand-offish, day-dreaming child who prefers staying by himself to playing in a group, who is always near when mother and teacher call, who takes criticism much to heart and broods over it. Previous generations cultivated these shut-in traits as ideal behavior patterns. Today we worry about them, realizing that the frank, active, out-going child who gets things out of his system has a far better chance to adapt himself to life's difficulties than his good, docile brother who never lies or steals or is impertinent to anybody.

6. An important aspect of the mental hygiene of childhood has to do with planning for energy outlets in the form of group play and well directed recreation. Society in its evaluation of attitudes toward play has gone through two periods: first, that of realizing that leisure time is a necessity for the maintenance of a healthy and well balanced life; and, second, that of recognizing the wealth of constructive educational possibilities associated with play and physical training. Year by year the physician is confronted by an increasing number of patients who break down under the strain of life. There is no big worry behind the picture of poor mental health, but in studying the individual stories of these patients one comes on lifelong inability to relax. The present age is not trying to repress the energy of childhood but to cultivate it, and in the cultivation to divert it into wholesome channels of activity. A person lives as a grown-up in a world with other persons, and his success or failure depends largely on his ability not only to get along with other people but also to enjoy group contacts.

ADEQUATE ENERGY OUTLETS FOR CHILDHOOD

It is agreed by all that "he that is slow to anger is better than the mighty, and he that ruleth his spirit is better than he that taketh a city." But it is one thing to treasure this proverb in the archives of memory; it is quite another to practice it in the traffic jams of daily experience. The boy or girl who has learned to do this on the playground will invariably put these principles into use in the business and social relationships of life. This thing is called team-work—the ability of a person to submerge his individualism for the good of the group. Power of good adjustment to life must come out of the experience of self-directed thinking, and it is this that formal education of home and school has been in the past so reluctant to permit. Sound physical education has made this its goal and watchword. By virtue of this it is coming to occupy an increasingly prominent place among the socializing institutions of the community. Ten years ago the physician and teacher struggling to plan for a mischievous, energetic half-grown boy could turn only to a barren yard, or acres of "keep off the grass." Today in the cities and in many towns every child and adolescent has a reasonable opportunity to play a game under the kindly supervising influence of men and women adequately equipped to teach fair play and the spirit of good sportsmanship.

There is another aspect of great importance in this matter of adequate energy outlets for childhood, and that is that play and recreation which satisfy serve to absorb a great deal of that restlessness and experimenting which arise from sex instinct and urges. Here is a topic of human behavior that has grown to be thought of as conduct to be judged rather than as behavior to be interpreted.

When does the sex instinct begin to show itself? For a child to evince curiosity along such lines before puberty is traditionally considered wicked, and persistent curiosity may be a sign of degeneracy. There is the matter of auto-eroticism, or self-abuse, for which parents and teachers refer small patients. From infancy on a child may drift into this practice, discovering its comforting sensations like thumb-sucking as an inducer of sleep, or stumbling on the mechanism as part of exploratory investigations conducted alone or with the help of other children. The medical advice in dealing with this matter has been far from wise and helpful. In common with parents and teachers, physicians too have been horrified, tying the child's hands, threatening to cut him with a knife, placing him in steel frames to sleep, and telling the child and his grown-up guardians that the practice is causing his body to deteriorate and will in all probability result in insanity or feeblemindedness. There is absolutely no truth in these fears. Auto-eroticism is seen openly practiced by individuals unbalanced enough to require institutional care. The same individuals are also seen spitting on the floor, and taking off their clothes and eating with their fingers. The latter behavior is recognized as a symptom of the unbalance, not a cause. In exactly the same way auto-eroticism is not a cause but a symptom, and as such it must be treated with intelligence. Do not worry about it and scold and watch the child every minute. See that he has plenty of chance to play and become thoroughly tired, and find interests more absorbing. The practice may not disappear at once or entirely, but it will greatly diminish. There is no physiologic danger connected with the habit. Havelock Ellis, a great English authority on the instinctive life, states that 98 per cent of normal adults go through an auto-erotic period from 12 to 20 years of age. Parents should take interest in the child's play. When he is small he should have toys that are suited to his level of enjoyment; more important yet, it should be remembered that it is a poor policy for any child to play alone even with the finest equipped playroom and yard with sand pile and swings. Adam grew tired of even the Garden of Eden. In like manner a child wants somebody to talk to, to argue with, to vie with in competition,

to enter into his imaginative fancies. What if the neighbors' children teach him bad words and impudence, or give him contagious diseases, he cannot be desensitized to these things too early. Better chickenpox and blasphemy than a child established in habits of selfishness inevitably associated with being solitary in all his ways.

COMMENT

I have mentioned somewhat in detail a few principles that the physician should keep in mind in considering the mental health of every small patient with whom he comes in contact. Their embodiment in practice might be considered the equivalent of a psychiatrically intelligent approach to pediatrics. A well known pediatrician writing Dr. Crothers says, "The psychiatrists have simply discovered a lot of things which doctors in general have known for many years." I have no doubt that the gentleman making this statement thoroughly believes this to be true, and yet the record of floundering in the treatment of nerves which the medical profession has established for itself over a long period of years is nothing to boast of. If even a preschool child either in dispensary or in private practice is asked what he and his mother are coming for, the diagnoses and medical discussions of every physician he has visited since he was old enough to understand words can be obtained instanter. Histories of patients are complacently taken from their parents, and theories of heredity and diagnostic fears are discussed in the presence of children, and then physicians wonder why these little folk whine over food, are afraid to run and play, and must sleep in mother's room. I have heard a professor of pediatrics give an hour's clinic over a 10-year-old patient with congenital heart disease and not understand why the child developed an invalidism a year later that was out of all proportion to his organic necessities. I have known a professor of ophthalmology to tell the mother of a 12-year-old girl with congenital glaucoma that she would become totally blind at 18. The child was sitting beside the mother and heard every word he said, developing then and there the roots of a chronic and persistent insomnia that for years handicapped every activity of her life. All over the country are physicians buoying up the parents of defective and retarded children with the prophecy that feeding glandular extracts, removing tonsils and adenoids and doing circumcisions will make these children intellectually normal. If such procedures are necessary they should be carried out, but precious years for special educational training should not be sacrificed to prophecies based on wholly inadequate scientific data. In short, from a behavioristic standpoint, one could write volumes on the topic, "foci of medical infection." Psychiatrically intelligent medicine and pediatrics call for something more than common sense; they call for trained common sense.

How will one go about training psychiatrically intelligent internists, pediatricians, obstetricians, gynecologists and orthopedists? From the behavioristic side of science one must frankly admit that the profession is confronted with a confusing amount of words and theories tending to proclaim some particular field of psychology and psychiatry as the one and only method of human salvation. There is orthodox psychology which claims that a study of intelligence functioning saves one any need for attempting so-called character and personality analysis. Opposed to this is behaviorism which makes environment and training the sole determinant of mental health. And again there is the psychoanalytic school of psychiatry that overemphasizes and overadvertises repression as the black plague of the soul. Is psychometric examination the only method of approaching the personality problem? Is it necessary to scrap the facts of heredity and eugenics in order to do justice to environment and training as behavior determinants? Shall society sit by and await with patience the day when biochemistry teaches it how to "change the personality with glands?"

As much can be suffered from training without common sense as from common sense devoid of training. It seems to me that the safest guide in approaching the mental health of childhood is a good general background in the field of medicine which includes training and a practical working knowledge of the integrated mental and physical functioning of a human being. The time is coming when every medical school will follow the example of the larger medical institutions of learning and place psychobiology and psychiatry on exactly the same basis in the curriculum as physiology and internal medicine. Rotating hospital services will include periods of resident training on psychopathic wards and in psychiatric dispensaries. The physician with this background of medical school and hospital training will then be equipped not only to treat the health of the child as a whole with a feeling of reasonable security, but also to utilize and correlate a wealth of helpful contributions from the broad field of education, psychology, sociology and psychiatry.

No one group of society has an exclusive claim on the mental health of childhood. It should be the active concern and intelligent interest of every constructive force in our social organization that comes in contact with the welfare of children.

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PEDIATRICS AND CHILD PSYCHOLOGY *

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MINNEAPOLIS

In an age in which the word psychology is so widely used by so many different people in such a variety of ways, one approaches the discussion of the relation between psychology and pediatrics with some fear and trembling. This is in part due to a feeling that, when the discussion is completed, psychology may seem to be a much more prosaic endeavor than most people believe, and to hold out somewhat less hope of meeting all our unsolved problems of human relations, at least within the next generation.

To many, psychology is a word to be glibly rolled off the tongue, whenever an inexplicable fact of human action occurs or a quick and easy explanation is sought. To those who are earnestly engaged in the business of trying to formulate valid principles of human behavior and to contribute to our understanding of human nature, psychology is a term which, however hard to define, nevertheless stands for a wide discipline, within which there are many individuals of high ideals who pursue their studies with as keen a comprehension of scientific method, as honest an appreciation of the difficulties of making valid generalizations, and as well trained imaginations as those who are to be found in other of the great scientific disciplines.

* Read before the Section on Diseases of Children at the Eighty-First Annual Session of the American Medical Association, Detroit, June 25, 1930.

Unfortunately, these workers, who are slowly but surely building a science, seldom secure the ear of the public and to their regret must see their field constantly misrepresented and exploited by the charlatan and the quack in a manner not unilke that which works to the harm of scientific medicine. Furthermore, all manner of men find their way into psychology just as all manner of men find their way into medicine. Occasionally quite as much harm is done by one within the field who, transcending his scientific principles, runs off into quick and easy and, I fear, popular generalizations, as is done by those outside. But the basic structure of knowledge and technic built up by the effort of many faithful workers, which carries us forward bit by bit to a knowledge and mastery of problems and events which previously seemed quite beyond the reach of human endeavor, must not be forgotten.

At the outset, it is well to distinguish between the quest for knowledge and the application of that knowledge in a practical way to human affairs. This distinction is reflected in the use of the term science and art, the first being concerned with knowing and the second with doing. This distinction is not new to medical men, for the great teachers have consistently pointed out that medicine is an art, built on certain basic sciences, and that medicine becomes ever more scientific as it utilizes more and more the knowledge that is accumulated by sound methods and technics. The great majority of psychologists are university and college instructors who in their laboratories are pursuing the goal of knowledge and who find their material taken over into a variety of practical arts, such as education and industry. The popular idea of a psychologist pictures him as one who is very successful in his own relations with other persons and one who is quite willing to give advice on all occasions to all persons. This is far from the true picture, as the majority of psychologists are no more practitioners than are the majority of physiologists, botanists or zoologists.

It is my purpose in this paper to discuss the relation of pediatrics to child psychology. The occasion arises out of the increasing emphasis being placed on methods of child training and problems of adjustment in this age and the many demands that are made on the physician educator and scientist for information and assistance.

It is quite natural that such a demand should arise as the final capstone of campaigns to improve the health of children. During the last three decades the public has been trained to look to the physician and nurse for information on health. Having been trained to seek the advice of scientifically trained people, the public turns to those who have previously helped them for information and advice on the more complex problems of child rearing.

This shift in emphasis may be a necessary outcome of the progress of today. Because of the overwhelming insistence of physical problems and of disease in the form of specific pain and the constant reminder of death which is present for all of us, medicine arises early as an attempt on the part of society to preserve and maintain life. Since the problems of mental adjustment, although equally serious, are not so immediately insistent, the sciences and disciplines that deal with mental adjustment arise later and assume specific form much later. When children are starving or are critically ill, it avails little to talk about training problems. The first task is the relief of the starvation and illness. When the children are reasonably well fed and in tolerably good physical condition, problems of mental adjustment or training arise.

Psychology as a science appeared relatively late; well after anatomy, physiology, chemistry and physics. Psychiatry, as the branch of medicine which deals with mentally ill and abnormal individuals, arose even later. Psychology is to be looked on as the science which concerns itself with the main trends or general laws which guide and control the behavior of human beings in relationship to their physical environment and to one another. While Dr. Richards will discuss the relationship of psychiatry to pediatrics, it nevertheless may be worth while for me to point out that psychiatry, working as it does in the field of abnormal phenomena, necessarily concerns itself more with the study of individual cases or variations rather than with basic or common trends.

In a sense, every individual in the world is a practical psychologist because he is engaged in the process of adjusting himself, of meeting other people and of reacting to them, and, whether he likes it or not, must formulate principles of conduct and deductions with reference to the conduct of others. The experimental psychologist or scientific psychologist is interested in substituting for the popular psychology on which every one must react a psychology based more definitely on demonstration and verification through the tools of thought which science has developed so admirably in other fields.

In the past, psychology has been largely interested in adults. Within recent years it has become increasingly evident that the adult can be understood only in terms of the processes that have preceded adult life. A somewhat similar development is occurring in medicine, as I understand it. Just as every succeeding year demonstrates the importance of a long time or developmental view of disease as contrasted with a short time or cross-section view, so the more one studies human behavior the more important the developmental approach becomes.

Then what has psychology to offer the pediatrician? The answer to this question is not as easy as it would seem at first glance. If such a science as chemistry or physiology is considered, it becomes clear that much material has been brought together under one heading which has fairly direct bearing on many of the problems which the pediatrician faces. But there is also much in these fields which has little or no bearing.

The contribution of the basic science is composed in part of a general background of terminology, concept and understanding with which problems can be approached, and in part of a matter of specific technic which can be applied in particular situations. In the psychologic field, through the activities of many scientific workers over the years, much material has been accumulated, some of which can be looked on as background and some as specific contributions.

First of all, man exists, in a world of other individuals and is a behaving unit meeting other behaving units of a similar sort. The knowledge of how human beings react should be a part of the knowledge of every one. A child is a growing, active, developing, adjusting person meeting the demands of a complex world. It is only within the last few decades that a serious effort has been made to determine the nature of the child and the manner in which he is brought into adjustment to the world about him. An understanding of the child's native equipment, of the manner in which he learns, of the way in which he thinks, feels and reasons, should be a part of the intellectual possession

of every individual who is in any way concerned with children, as parent, physician or teacher. I regret that it is necessary for me to speak in such general terms, but if one looks at a standard textbook in psychology, one finds a book of 400 or 500 pages, embodying the results of hundreds of investigations, which can be mastered only by considerable effort.

If the student of behavior wishes to go back of the elementary textbooks to the more advanced works dealing with particular phases of psychology in detail, he will find literally thousands of books and monographs available. As current sources of material, he will find some twenty scientific periodicals in the United States devoted to psychologic work and as many more published abroad. Out of this great mass of material there is slowly evolving a well integrated and basic mass of psychologic fact.

INTELLIGENCE TESTS

As to the specific contributions which psychology can make to pediatrics, I have time to mention only two in detail. Of these, the first has attracted the greatest amount of public attention and has been the basis of much discussion. I refer to the widely used intelligence tests. Much misunderstanding as to the purposes and significance of intelligence tests has arisen. This has resulted in part from the use of the general term intelligence, to describe what is in fact a measurement of a fairly specific aspect of the whole total of the individual's behavior, and in part from the widespread tendency to interpret test results as placing the child in a permanent category. While it is true that such tests have been exceedingly useful in sorting out defective and retarded individuals and in the development of special technics for the education and training of both retarded and gifted children, nevertheless there is nothing inherent in the intelligence test itself which sharply defines or characterizes the whole adjustment of the individual to his life situation.

The intelligence test has predictive value within certain limits and for certain types of life situations. Narrowly and carefully interpreted, the results are of great significance and practical use. When the results of such tests are looked on as closing an individual case rather than as a basis on which wise guidance, treatment and control can be developed, they defeat their own purposes. While the overpopularization of tests has been somewhat harmful, in the main their widespread use has contributed to the welfare of all children. New principles of education have been developed around individual differences. Society has moved from a lockstep system in which all children were treated much alike to a system in which endeavor is made to accommodate the kinds and type of instruction to the capability of the individual child.

For the pediatrician the intelligence test represents a fairly simple measurement made by a technically trained person, which will enable the physician to gain new insight into difficult cases and make possible better recommendations for the care of the child. If he expects the test to solve all the child's problems he will be disappointed, just as would be the case if he took one of his other laboratory technics built up for a special purpose and tried to solve all his problems of physical disease with it. Some acquaintance and understanding of the use of intelligence tests will also give him an insight into the wide variation that exists among children, and the necessity of approaching each child as an individual.

THE TRAINING OF YOUNG CHILDREN

The second specific contribution which the psychologist can make to the pediatrician is likely to be found in the recent attack of the psychologist on the problem of the development and training of young children. Within the past five years a number of institutes for the study of children have been established, usually with schools for young children as an integral part. In these institutes in which physician, psychologist, sociologist and educator cooperate in a wide variety of researches, much material is being accumulated that is of direct and practical significance for the problems which the pediatrician meets daily in his practice. Space does not permit my going into detail. I might mention, however, the Minnesota studies on sleep and the Toronto studies on basic habits. It is too early as yet to predict the extent of the contribution which will be made, but it is clear that any group of scientists attacking the complex problems of the young child from observation, contact and study, rather than from the armchair or an exclusively adult point of view, is of necessity bound to develop a sympathetic attitude toward the work and possibilities of pediatrics and to make contributions to the work of all those concerned with children.

In the past, entirely too much of our material on child life has been projected back from our knowledge of the adult rather than built up progressively from the actual observation and study of children. Much harm is done by the assumption that children are but adults in miniature, and that any one who knows adults necessarily knows children.

If the psychologist offers the pediatrician his material on children, he has, I think, a right to expect something in return. That something which he expects is a sympathetic understanding of the basic principles of child life and of the modification of child behavior. Some pediatricians show an excellent knowledge built on the basis of their practical experience with hundreds of children. Others seem to be almost completely ignorant of the fact that they are handling a child rather than a disease or a particular physical condition.

HOW TO GAIN KNOWLEDGE OF CHILD PSYCHOLOGY

May I add a word about the specific procedures through which the physician and pediatrician may gain some knowledge of child psychology. First of all it seems to me that every educated person should have some contact or acquaintance with the elementary facts of human behavior as presented in the ordinary or beginning textbooks of psychology. Granted some acquaintance and general background, there should be the contact with normal or typical children which seems to be so worth while and valuable in gaining a point of view with reference to children. The establishment of well baby clinics which in many medical schools constitute a part of the training of the pediatrician constitutes a decidedly worth-while step in this direction, for here the student sees not the ill children of the wards but those with minor difficulties arising in the ordinary home environments. If to these well baby clinics there could be added limited opportunities for the observation of children in groups or at play, such as are furnished by our modern schools, particularly those for young children, I think much would be gained. It is one thing to see a child for five or ten minutes in a forced or strained situation and another thing to see children who are under no pressure or strain at their activities for a considerable period. Particularly valuable in the training of the young man entering the field would be

the observation for a short period of a highly skilled teacher of young children at her work.

As the pediatrician practices, he is apt to become more and more inclined to base his generalizations and practical recommendations on briefer and briefer observations and contacts with children. This is a natural tendency, in view of the growing demands that are made on one's time. But it is a tendency that can be counteracted with some profit by taking every opportunity to see children at their ordinary life in play, school and home, both as individuals and as groups. Occasional visits to schools, trips to playgrounds, visits with families, all are of value in building up a sound view of child life. After all is said and done, what Dr. Crothers calls a wise and tolerant curiosity about mental processes and an attitude of respect toward the emotional and intellectual difficulties of the child cannot be acquired without manifold contacts with children in all aspects of their lives.

IMPORTANCE OF THE PEDIATRICIAN

Finally, I wish to point out the important position held by the pediatrician in relation to the children under his care. He sees them from time to time throughout the period of their most rapid growth; he is consulted by the parents both during emergencies and when emergencies do not exist. If he is interested in the whole adjustment of the child, he can do much in his incidental contacts with the children and with the family to further their well being with respect not only to their physical health but also to their mental health.

The manner in which the individual physician will respond to this opportunity depends to a large degree on his personal characteristics, training and interests. As the physician himself practices, he is modifying his own nervous system and is building the particular modes of responses which will later become characteristics of his whole approach. If he rushes in and rushes out paying attention only to the physical needs of the child he will soon find himself by the very nature of his work restricted to a narrow point of view. On the other hand, if he takes a sympathetic and wise interest in all phases of child life he will find not only an increased interest in all phases of his work but also a return flow from his general interest in children and their adjustment problems back to his efforts and procedures for the physical care of children. He will then become a sane and wise counselor, well equipped to give the children under his care a good start on the road to successful and happy living.

SUMMARY

I have pointed out that:

1. Despite the popular loose use of the word psychology, there is a considerable body of able scientific investigators who are gradually building up a substantial body of knowledge about human behavior.

2. As the physical health of children is improved, questions of mental health, learning and adjustment arise and more and more demand is made on the scientist and physician for information and guidance.

3. The contribution of psychology to pediatrics is both general and special. The first consists of a background of terminology, concept and understanding and the second of technic such as the intelligence test, and such specific results as may be expected from the coordinated attacks of physician, psychologist, sociologist and educator on the life of the young child, shown in the recently developed institutes for the study of children.

4. The psychologist may expect from the pediatrician in the future a sympathetic understanding of the basic principles of child life and the modes of modifying child behavior.

5. Through contact with children in school, on the playground, at home, at work and at play, *en masse* as well as individually, the forward looking pediatrician can supplement his contacts with children as patients in such a way as to become an intelligent and wise counselor on all aspects of child life.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. RICHARDS AND ANDERSON

DR. A. H. PARMELEE, Chicago: It is hard for me to understand how a pediatrician can escape a sense of responsibility in regard to the mental hygiene of his patients. Certainly not a day goes by but that some patient comes to me in whose case there are points which need some sort of psychologic interpretation. I can see, in the forces that are sending physicians into a study of this phase of child health, a definite similarity to those which sent physicians into an intensive study of infant feeding. They are being forced into it by public demand whether they wish it or not. Twenty or thirty years ago the public began to be flooded with literature, bulletins and talks about proper, well balanced diets for infants and children. Certain men began to be more or less expert in the feeding of infants and young children, but the majority of physicians found that their patients often knew more about the subject of infant feeding than they did: they asked a lot of questions which many physicians could not answer. Consequently, infant welfare societies and other public health centers for conveying feeding information were established because the public demanded it. A similar situation arises today with the great amount of interest that is being shown by the public in regard to mental health. Interest of parents in their own mental health has inspired them to take measures to protect their children from the handicaps they themselves have suffered through ignorance of mental hygiene on the part of parents, teachers and physicians. The psychiatrically minded pediatrician need not be a psychiatrist. His knowledge can only be general but should be comprehensive enough to enable him to handle the usual case and know when to send a child to a real psychiatrist. I am afraid that sometimes a child is branded as a "problem child" by being inadvisedly referred to a psychiatrist when the pediatrician should have been able to handle the case in a more simple way; just as the child who is a little bit slow in school is branded among his schoolmates by being put inadvisedly into the so-called opportunity class.

HARRY J. BAKER, Ph.D., Detroit: The White House Conference on Child Health Protection has a subcommittee dealing with the problem of what the schools shall do with behavior problems. The committee consists of a psychiatrist, a pediatrician, a school principal, and myself as a school psychologist. We are trying to get at the problem of what to do with the children. We have discovered in the past few years that if we study the intelligence distribution of children who are known to be behavior problems, if we can speak of them as a general class, we find that as a group they are somewhat dull or slow children, not feebleminded but slow. We have a suspicion that our school organization has not handled the psychology of slow children properly. It is one of the important challenges of education to build a curriculum suited to the mental capacities of slow children so they should at least be happy and grow up into what is considered the best that can be offered from the standpoint of school mental hygiene. From the standpoint of the practitioner and of the child, it seems necessary many times to exercise great patience to keep the child in its present school environment. From the standpoint of the teacher with a crowded room and a school administrator with many complaints coming in of malbehavior of children, it may seem desirable to segregate these children. School administrators are quite embarrassed between two rival forces in knowing what to do with this problem alone. I believe that teachers as a whole are quite sincere in wishing to do something with problem children. Many lack technical training. One of the problems

of the conference is to decide what sort of program of training a teacher should have in order to understand problem cases better. I believe that at least 3 or possibly 5 per cent of all children offer serious adjustment problems in school. Part of the survey made recently shows that less than 4 per cent of the large cities of the country are really doing anything to handle this problem.

DR. PAUL J. ZENTAY, St. Louis: The beginning of this new era has been described as a revolution. Such a revolution is actually in process whether physicians want to accept it or not. And it is taking place in the whole field of medicine and in pediatrics in particular. It is well known that through many phases of development a stage in medical science has been reached where old conceptions must be rewritten in terms of biology and pathology of the human person. The general practitioner or the pediatrician of today has to deal with the whole human individual and has to study the problem on that basis. Dr. Gesell recently stated that pediatrics of the future has to be rewritten in terms of behavior. I think that, after listening to the symposium this morning, all feel that there is a great deal of truth in this statement. The symposium makes it evident that the problems are primarily of genetics and development. Pediatrics seems to be the only branch of medical science that is primarily interested in genetics and development. It is trying to follow up the child from the first moment of life to adulthood. This has necessarily to include studying the genetics and development of the psychic side of the child. Pediatricians are particularly in a position to promote the mental hygiene of childhood. The outstanding problems in this field have been pointed out in the symposium. The important need, in my opinion, is a more intensive research in studying child life. Physicians have to get more complete biographies that follow the child from the first moment of life until adulthood. Through them they will be able to understand more thoroughly all reactions and integrations of the child. The speakers and also the discussers have emphasized the need of more intensive training in this field. This seems to be unavoidable for pediatricians of the future. With better training, pediatricians will be in a position to apply principles of mental hygiene in infancy and preschool age, when most needed and when results are more promising, that being the stage of development when mostly pediatricians can reach the mother and the child.

DR. HARRY STACK SULLIVAN, Towson, Md.: From birth onward, the human individual is a social creature. The factors of principal import in his environment are social—are interpersonal relations. When the pediatrician or the psychiatrist interested in children considers a particular child, he must realize that he is dealing with the nexus of a social situation. The ultimate problems confronting them are not to be solved by anything they can do to the child as a separate entity or to the important other people considered as separate entities. In many cases the problem concerning this nexus is one that can be dissipated by the use of "enlightened common sense." Enlightened common sense consists in part of a body of superstitions, some of which are conspicuous ingredients of so-called mental hygiene. Dr. Anderson is one of the workers who are accumulating facts with which the superstitions now included in common sense as applied to child guidance and correction can finally be replaced. One of the greatest steps in mental hygiene is the institution of regular feeding and sleeping habits in infancy. Considered from the standpoint of personality genesis and evolution, the principal import of infancy is embodied in the learning by the individual of the boundaries of reality and of himself. To the extent that he learns that there are rigid uniformities and consistencies in the universe, to that extent he has gone a long way in an exceedingly new fashion—that is the personality implication of the inculcation of regularity in sleeping and feeding. Speaking as one from outside this section, I would wish to counsel its members to a certain caution in adopting verbal formulas from various disciplines. The formula often omits essential factors used effectively by the specialist without his awareness of their importance. His experience is frequently reflected but poorly in the utterances of any specialist, even those of a synthetic chemist. There is a great deal that can be done by any medical man when he is inspired by the correct view of the individual. The creation of child study institutes and the accumulation of scientific material should be encouraged by every means. The person, infant or adult, is not a concrete unitary entity running around loose, but instead is invariably the nexus of a complicated fabric, and not carriers merely of tissues and organs.

DR. BRONSON CROTHERS, Boston: Psychiatry and psychology are far from being fads. They are absolutely inevitable parts of the intelligent general practice of pediatrics. The human contacts the pediatrician forms give him enormous advantages over the specialist who is called in after trouble begins. He knows, or ought to know, the character of the parents, how they have succeeded with their other children. He ought to know, at least, in general, the effect which the educational program devised for that particular child has upon him. It is perfectly evident that there are different kinds of education in private schools. One school may develop a peculiar type with great regularity. That is a thing which must be taken into consideration to decide whether or not anything shall be done about it. Another thing is that the present technic of elaborate psychiatric and psychologic clinics is adapted primarily to the discovery of new facts. It can hardly cover the entire ground. Public demand is such that children are going to be taken care of somehow. There is a strong effort being made to jump over the pediatrician largely because the pediatrician has not been sensitized to the situation. Dr. Richards speaks of a desirable situation occurring by which the pediatrician should be psychiatrically intelligent. I think that one of the serious dangers is that, if pediatricians do not become psychiatrically intelligent and educationally sensitive, the work of handling the child will be taken up by some one not pediatrically intelligent. I think that this would be a great pity. I think we have a fragile hold on a favorable position. If we can stay in, we are in a position to take advantage of advances quite definitely. Furthermore, every one will recognize that the handling of chronic disability is primarily a medical responsibility. I think no one would decry for a moment that the slightly handicapped child can be enormously mishandled from an emotional standpoint. So, an extraordinarily simple position in handling chronic disease is taken and if account of the emotional factors that must be set up by disability is taken, we shall go some distance. If habit training is regarded as something more than getting in vitamins and calories, another long step will be taken. After we once get that far, we must be extraordinarily stupid and unseeing if we do not try to grasp what we can from the efficient, elaborate technic of psychiatry and psychology. Psychiatrists and psychologists ought to prepare carefully to educate us. I do not feel that their efforts in this regard are by any means perfect.

DR. JOHN E. ANDERSON, Minneapolis: One comment occurs to me in line with what Dr. Sullivan has mentioned. It is to the effect that there are now being established in various universities in the United States organizations for the study of the development of children, which utilize the services of pediatricians, psychologists, sociologists, educators and other scientists in a combined attack on the scientific study of child development and which give promise of making substantial contributions to all phases of our knowledge of children. Much of the difficulty in handling children arises from the fact that adults assume, because of knowledge of how adults act, that they can therefore handle children, and because adults carry back from adult life into the life of the child many principles and facts without making a study of the child at his own level. It seems to me that pediatrics, if it realizes its scientific possibilities, is in the fortunate position of furnishing material for a reworking of much of the field of medicine and behavior, since the pediatricians are the people who see the developing person from birth through to adulthood, and who therefore have an integrated point of view with reference to behavior and development. The stage is past when one can look at a disease or an individual at any particular level and say that at that particular level one knows all about the disease or individual. In the present period the developmental history, the genetic story of the progress of the individual, is important. The child must be studied at his own level. Actual daily contact, observation and experiment, rather than the spinning of theory from armchairs, will contribute the important generalizations of the future.

DR. ESTHER LORING RICHARDS, Baltimore: In educating ourselves as physicians, teachers, social workers, psychologists, we have to beware of the great field of diverse opinion in the scientific study of behavior. The physician who has only a little time to read works on this subject is apt to be prejudiced by reading one single article. The field of child study as it is being developed in institutes such as the child Welfare Bureau of Iowa, the Minneapolis research station of Dr. Anderson, and in various other institutions of this country is bringing us invaluable material. On the other hand, I think we have to realize that the formal child guidance clinic as it is being thrust upon us sometimes is a little bit magnificent for our practical needs. In one clinic in this country, I am told, it costs about $500 to make a complete examination of one child. That is a little "steep," I think. I feel we have to realize that we are obliged to choose from many different brands of psychiatric intelligence which come to us, and that the choosing of that is not something that can be done in a hurry or with prejudice. We can make such choice only after a thoughtful consideration and acquaintance with the broad field of behavior study as it develops reliable data on which to base theory.

Clinical Notes, Suggestions and New Instruments

RAYNAUD'S DISEASE OF THE UPPER EXTREMITIES: CURE AFTER THORACIC SYMPATHECTOMY

ANATOLE KOLODNY, M.D., PH.D., SIOUX CITY, IOWA

When Raynaud first described the disease subsequently named after him, he expressed an opinion that the circulatory disturbance in this disease was due to a vascular spasm. Recent

Fig. 1.—Atrophy of distal phalanges of the right hand.

microscopic study of the capillaries of the terminal phalanges of the involved extremity showed that the original suggestion of Raynaud is correct, and that the anatomic substratum of the disease is a prolonged vascular spasm due to irritation of the vasoconstrictors. Surgical treatment of this disease then suggested itself. It consists in an interruption of the path of the vasoconstrictors and in such a way in an abolition of the competition that the vasodilators have to meet. Deficient knowledge of the anatomy of the sympathetic vasotonic system up to recent years blocked the way of the evolution of surgical treatment of this disease. The periarterial sympathectomy of

Fig. 2.—Appearance of left hand. Note the bony changes in the terminal phalanx of the little finger.

Leriche failed to effect a cure because of the fact that the sympathetic nerve system has a segmental distribution and that by a periarterial sympathectomy one actually interrupts only a small part of the sympathetic impulse to the extremity.

Raynaud's disease of the lower extremities is cured by a lumbar ganglionectomy. This is a well proved clinical fact. More difficult was progress in treating Raynaud's disease of the upper extremities. Cervical ganglionectomy was found to be wanting in effecting a cure. Only after Kuntz [1] demonstrated that a large number of the sympathetic fibers supplying the upper extremities pass through the second thoracic ganglion was it clearly understood why a cervical ganglionectomy failed therapeutically. In 1929, Adson put to test Kuntz's information. He suggested the removal of the second thoracic ganglion along with the stellate ganglion. The technic of this operation is described by Adson. In May, 1929, Adson [2] reported two cases in which he operated by this method, with good results.

Obviously, such cases are not frequent, and it might be of interest to put on record a patient with Raynaud's disease of the upper extremities on whom I operated in September, 1929.

REPORT OF CASE

A Bohemian woman, aged 30, had been noticing for many years that her fingers became pale and numb on exposure to cold; on a change to warm weather her fingers became red and swollen and tingled. At first these sensations were not so severe and would occur only in the winter, but in 1927 they began to come on at the slightest change of temperature the year around. All of the fingers of both hands would become numb; they tingled and pained. She had no relief between

1. Kuntz, Albert: Distribution of Sympathetic Rami to Brachial Plexus: Its Relation to Sympathectomy Affecting Upper Extremity, Arch. Surg. **15**: 871-877 (Dec.) 1927.
2. Adson, A. W., and Brown, G. E.: Surg. Gynec. Obst. **48**: 577-602 (May) 1929.

the attacks of pain. Soon black sore spots appeared beneath the nails at the tips of the fingers. To relieve the pain somewhat, she held her hands wrapped in a blanket, when the fingers would become quite cyanotic and perspire freely.

The patient was apparently in normal health, with the exception of somewhat stiff fingers covered with puffed bluish skin. Large drops of perspiration were seen over the fingers, especially on the palmer side. There was atrophy of the terminal phalanges of most of the fingers. The terminal phalanges of the right index finger and of the left little finger had disappeared almost entirely. The blood pressure was 132 systolic and 84 diastolic. The roentgenogram showed atrophy of the distal phalanges (fig. 1).

September 20, I operated under ether anesthesia. The stellate and the second thoracic sympathetic ganglion on the left side were removed. Examination in the afternoon showed the left hand to be pink, warm and dry, while the right hand was cold, moist and cyanotic. A slight Horner's syndrome was present on the left side. On the third day after operation the patient developed a pneumonia limited to the left lower lobe. The patient remained at the hospital six weeks. During the entire time of the patient's stay in the hospital the marked improvement in the circulation of the left hand persisted, and the patient was entirely free from any of the former symptoms in the left hand, while the clinical picture of the right hand has not changed. A letter from the referring physician, Dr. Keough of Dubuque, Iowa, of May 19, 1930, reads, "Your operation helped her a great deal on the left side. The result was wonderful."

Frances Building.

WHIRLPOOL BATHS AND POSTERIOR SPLINTING TO OVERCOME CONTRACTURES IN BURNS

J. W. HILBERT, M.D., SOUTH BEND, IND.

Contractures occurring secondary to burned areas about a joint are always problems of considerable magnitude, especially when the disability and compensation factors are taken into consideration. Many methods have, in the past, been used, such as open method with extension and weights, paraffin method and sand bagging, all of which have caused considerable pain to the patient and many of which had finally to be discontinued either because of the discomfort or because they were not practical over a long period of time.

I report this case merely because, as far as I can discover, the method used is unique, is easily carried out and gives excellent results.

July 8, 1930, a white man, aged 24, sustained extensive second and third degree burns to both extremities from the ankles to the middle third of the thighs. The whole circumference of both limbs was involved. A thick application of ointment dressing was applied and the patient removed to the hospital. Within twenty-four hours the patient presented a toxic picture with chills, fever and rapid pulse; he became delirious; the urine showed albumin, much pus, granular casts and blood. The routine procedure of relieving the kidneys was followed with normal response, but by the fifth day sloughing of the burned areas and purulent secretions became very extensive. Because of the pain associated with the dressing and cleaning of the parts, the patient's extremities were subjected to whirlpool baths, at a temperature beginning at 100 F. and increasing to 110, for ten minutes. This not only took away all secretions and the major portion of the sloughs but also affected a stimulating massage. On the seventh day the first evidences of contractures became manifest and within twenty-four hours there was right angle flexion of the limbs at the knees. Two light weight but strong veneered boards were designed so as to extend from the patient's heels to just below his buttocks. These were tapered from 2½ inches at the distal end to 8 inches at the proximal extremity. After padding with cotton and covering with gauze the splints were placed, one posterior to each limb, and 2 inch gauze ties were used as an anchorage at the ankle and at the middle third of the thigh. By this method the weight of the limb, after twenty-four hours, overcame without pain to the patient almost all of the contracture at the knees, so that the 8 inch distance from the splint to the popliteal space on application of the splint was reduced to 3 inches in one day's time. In another twelve hours the legs were fully extended and the splints were removed. After three days there again appeared some flexion, but this was readily overcome by reapplication of the splints for a period of another twenty-four hours. Whirlpool baths followed by water cooled ultraviolet irradiations were continued daily to July 24, at which time this procedure was done every second day until August 8. After six weeks' time the patient has but a few denuded areas on each leg, which are rapidly filling in with healthy epithelium. He walks normally, without pain; he can flex and extend both limbs normally and will have no permanent impairment.

Council on Pharmacy and Chemistry

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

W. A. PUCKNER, Secretary.

INCREASED POTENCY OF VIOSTEROL PREPARATIONS

The Council accepted viosterol in oil 100 D and cod liver oil with viosterol 5 D and the brands made under license from the Wisconsin Alumni Research Foundation by the following firms: Abbott Laboratories, Mead Johnson & Co., Parke, Davis & Co., and E. R. Squibb & Sons.

The Wisconsin Alumni Research Foundation informed the Council that the accumulated clinical experience with viosterol has shown that better results in the treatment of rickets are secured when a dosage of vitamin D is used larger than that originally recommended. The Foundation in addition points out that the maximum limits of safety as to the amount of vitamin D that can be used has now been more definitely determined than was the case when preparations of viosterol were first put on the market. Instead of increasing the dosage of the present products, the Foundation and its licensees determined to increase the potency of the preparations used. It was decided to increase the potency of viosterol in oil so that instead of having 100 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 250 times that potency, and, provided the Council on Pharmacy and Chemistry should agree, to increase the potency of cod liver oil with viosterol so that instead of having 5 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test, it shall have 10 times that potency. The Foundation has supplied each of the manufacturers operating under its license with a preparation of viosterol in oil 250 D (Steenbock standard), to be used as a control in the standardization of their respective products. The Foundation announced that these products of increased potency will be put on the market beginning with October first.

The Council on Pharmacy and Chemistry has accepted the changes of potency determined on by the Wisconsin Alumni Research Foundation and has changed the name of viosterol in oil 100 D to viosterol in oil 250 D and the name of cod liver oil with viosterol 5 D to cod liver oil with viosterol 10 D. It has continued the acceptance of the viosterol preparations already accepted, under the new names, viz.: Viosterol in Oil 250 D-Abbott, Abbott's Cod Liver Oil with Viosterol 10 D (Abbott Laboratories); Mead's Viosterol in Oil 250 D, Mead's 10 D Cod Liver Oil with Viosterol (Mead Johnson & Co.); Parke, Davis & Co.'s Viosterol in Oil 250 D, Parke, Davis & Co.'s Cod Liver Oil with Viosterol 10 D (Parke, Davis & Co.); Viosterol in Oil 250 D-Squibb, Squibb's Cod Liver Oil with Viosterol 10 D, and Squibb's Cod Liver Oil with Viosterol 10 D, Mint-Flavored (E. R. Squibb & Sons).

Characteristics Depend on Genes.—All types of characteristics, all manifestations of life, of whatever sort, are alterable by altering genes. . . . Structural characteristics, internal and external, colors, shapes, sizes, chemical properties, physiological functions, senses, behavior—all have been shown to be changed by changing genes.—Jennings, H. S.: The Biological Basis of Human Nature, New York, W. W. Norton & Co., Inc.

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SATURDAY, OCTOBER 4, 1930

HEMOCHROMATOSIS

Hemochromatosis is a rare but readily recognized disease characterized clinically by bronzing of the skin, by ascites and other symptoms of cirrhosis of the liver, and by diabetes mellitus. Anatomically it is characterized by the widespread deposition of pigment in the tissues and organs of the body including the skin, to which the visible bronzing is due; by continuous destruction of liver cells and their replacement by connective tissue, to which the manifestations of cirrhosis are due; and by destruction of acinous and islet cells of the pancreas and their replacement by connective tissue, to which the symptoms of diabetes are due. The more exact modern knowledge of the condition dates from the classic presentation of the subject by von Recklinghausen, who in 1889 gave a thorough description of the disease and demonstrated the presence in the tissues of two kinds of pigment. One of these, which is iron-free and which he named hemofuscin, is widely distributed in the connective tissues and smooth muscle, where it usually occurs alone, and in the epithelial cells of various glandular organs, where it is usually associated with the second pigment, which contains iron and has been known as hemosiderin since the time of Virchow. Of the various morphologic changes that occur in hemochromatosis, deposition of pigment is the fundamental one. The other alterations that produce the dominating clinical symptoms are secondary. Characteristic of the disease and necessary for the proof that a given condition is hemochromatosis is the presence of the two pigments. Von Recklinghausen himself derived the deposited hemofuscin from the hemoglobin of the blood, but many of his contemporary pathologists did not consider such an origin well established.

Since the time of von Recklinghausen, nothing essentially new has been added to knowledge of the disease and no new conception of its nature was offered until the work of Mallory [1] of Boston. Ten cases of the disease that came to necropsy at the Boston City Hospital within the course of a single year furnished an unusual material for the study of the pathologic histology of the disease. Also available for study were nine other cases that had been examined post mortem either before or after the series of ten cases. Study of the clinical records of this group of cases brought to light two factors that seemed to have a bearing on the causation of hemochromatosis; namely, excessive indulgence in alcohol or exposure to copper. By the addition of copper acetate to the food of rabbits, in daily doses of 200 mg. over a long period, Mallory, Parker and Nye [2] were able to cause a pigmentary cirrhosis of the liver which, in the presence of both hemofuscin and hemosiderin, in the necrosis of pigment laden cells, and in the connective tissue replacement of the destroyed cells, they held to be identical with the cirrhosis of human hemochromatosis. From his clinical, pathologic and experimental studies Mallory concluded that chronic copper poisoning is the important etiologic factor in hemochromatosis. He believes that hemofuscin is formed from the hemoglobin of the blood, the exact nature of the transformation being as yet unclear. Overloading of the cells of the liver and pancreas with pigment leads to their necrosis and to their replacement by connective tissues. The destruction of liver cells is associated with regeneration of parenchymatous cells, in which the process of pigmentation, necrosis and replacement is again repeated. In the course of time, the process being a slow and protracted one, iron is united to the hemofuscin, the pigment that gives the iron reactions of hemosiderin being thus formed. The development of the complete and typical symptom complex of hemochromatosis takes from fifteen to twenty-five or more years.

The manner in which chronic poisoning with copper causes hemochromatosis cannot be considered fully understood, and the mechanism of the action of the metal does not appear to be a direct and simple one. It is known that in larger doses copper salts cause hemolysis and hemoglobinuria. It is probable that in smaller doses they also cause destruction of erythrocytes, but why the hematogenous pigment that results from the prolonged slight destruction of red blood corpuscles should be distributed so widely as it is or should be retained in the tissues so tenaciously instead of being excreted or changed to bilirubin is not explained. In the case of the human disease, the implication of copper as the etiologic agent is conjectural and is based on a history of overindulgence in alcohol or exposure to copper. Alcohol, usually held responsible for the nonpigmentary form of interlobular cirrhosis, is blamed because the illicit liquors made under the eighteenth constitutional amendment frequently contain copper. Mallory found as much as 185 mg. per liter in one sample of whisky.

1. Mallory, F. B.: The Relation of Chronic Poisoning with Copper to Hemochromatosis, Am. J. Path. **1**: 117 (Jan.) 1925; Hemochromatosis and Chronic Poisoning with Copper: Tenth Mellon Lecture, Arch. Int. Med. **37**: 336 (March) 1926.

2. Mallory, F. B.; Parker, Frederic, Jr., and Nye, R. N.: Experimental Pigment Cirrhosis Due to Copper and Its Relation to Hemochromatosis, J. M. Res. **42**: 461 (Oct.) 1921.

In five of the pigmented cirrhotic livers examined quantitatively for copper by Mallory, the copper content varied from 1.5 to 19.1 mg. per kilogram of liver. The copper content of four control livers varied from 0.77 to 20.4 mg. per kilogram, the largest amount being found in the liver of so-called alcoholic cirrhosis.

In the case of the experimental disease, the mode of action of copper is also not completely established. Flinn and Von Glahn [3] of New York were unable, by the long continued administration of copper to rabbits and other laboratory animals, to cause the characteristic pigmentation and cirrhosis of the liver of hemochromatosis. Oshima and Siebert,[4] stimulated by three cases that were examined post mortem in Aschoff's institute in Freiburg, have more recently repeated the feeding experiments of Mallory. Copper acetate in a dosage of 200 mg. daily was administered to rabbits by stomach tube over a period of from 61 to 249 days. Marked pigmentation of the liver resulted and the copper content of the liver varied from 52 to 170 mg. per kilogram of liver, as compared with an average of 6 mg. per kilogram in control animals, but the necrosis of liver cells and the increase in connective tissue of the liver described by Mallory were absent. Furthermore, the iron-free pigment in the liver cells was soluble in alkalis and not stained by fuchsin. Despite their somewhat discordant results, Oshima and Siebert, who had been able to examine Mallory's microscopic preparations, were convinced that the latter had actually caused the development of hemochromatosis experimentally. They believe, however, that some unknown factor must act with copper to cause the pigmentary cirrhosis of hemochromatosis.

In his report of the three human cases, Siebert [5] calls attention again to the marked pigmentation of the synovial membranes of the joints noted by von Recklinghausen, and to pigmentation of the epithelial cells of the hypophysis, not sufficiently emphasized in some previous reports. The gallbladder of each of the patients contained pigment calculi with a high copper content. The patients came from villages devoted to the wine producing industry, in which copper salts are widely used. The incidence of hemochromatosis is higher in this district than in other parts of Germany. The livers of these patients are included in a series of sixteen livers from hemochromatosis examined for copper by Oshima and Schönheimer.[6] The copper content varied from 9.86 to 19.33 mg. per kilogram, as compared with from 1.09 to 3.9 mg. in seventeen normal livers.

While the exact way in which long continued intoxication by small amounts of copper causes hemochromatosis has not been clearly shown, a relationship of cause and effect as between copper and hemochromatosis appears probable. Although hemochromatosis in its fully developed and easily recognized form is a rare disease, the detection by Mallory of hemofuscin and hemosiderin in the liver, pancreas, kidneys and heart muscle of 11.6 per cent of all adults, a total of 463, coming to necropsy at the Boston City Hospital in the course of two and one-half years suggests that milder and incompletely developed forms of the disease may be more frequent than is generally supposed. If the prohibition experiment has led to a decrease of alcoholic cirrhosis, as some have claimed, the continued use of illicit liquors containing copper may lead to a replacement in medical statistics of nonpigmentary interlobular cirrhosis of the liver by the pigmentary cirrhosis of hemochromatosis.

3. Flinn, F. B., and Von Glahn, W. C.: A Clinical and Pathologic Study of the Effects of Copper on the Liver, J. Exper. Med. **49**: 5 (Jan.) 1929.

4. Oshima, F., and Siebert, P.: Experimentelle chronische Kupfervergiftung: Ein Beitrag zur Frage der Pathogenese der Hämochromatose, Beitr. z. path. Anat. u. z. allg. Path. **84**: 106 (Feb.) 1930.

5. Siebert, P.: Ueber menschliche Hämochromatose, Beitr. z. path. Anat. u. z. allg. Path. **84**: 111 (Feb.) 1930.

6. Oshima, F., and Schönheimer, R.: Ueber den Kupfergehalt der normalen Leber und der Leber bei Hämochromatose, sowie von Gallensteinen und Gesamtblut, Ztschr. f. physiol. Chem. (Hoppe-Seyler's) **180**: 252 (Dec.) 1928.

HYPERVITAMINOSIS WITH VITAMIN D

The introduction of irradiated ergosterol in various forms, such as viosterol in oil or cod liver oil supplemented with viosterol, into modern therapy has raised many questions of practical as well as scientific importance. The uncertainty as to the possible toxicity of an agent so uniquely potent as irradiated ergosterol awakened misgivings regarding the desirability of advocating its widespread use. These misgivings prompted the limitation of the recommended dosage within modest bounds. However, it has been repeatedly demonstrated that doses a hundred or even a thousand times those that bring about cures of rickets may be used before disaster ensues. The dreaded specters of hypercalcemia, with its dire effects on the arteries, and of hyperphosphatemia were presently dispelled. The pendulum of dosage had swung so far in the direction of caution that it now seems advisable to increase somewhat the concentration of viosterol in oil and in cod liver oil adopted by the Council on Pharmacy and Chemistry of the American Medical Association for products included in New and Nonofficial Remedies.[1] On page 1021 of this issue the Council reports that the preparations of viosterol in oil formerly having 100 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 250 times that potency, and that the preparations of cod liver oil with viosterol formerly having 5 times the vitamin D potency of a standard cod liver oil as determined on rats by the Steenbock line test are increased to 10 times that potency.

Another question of moment involves the modus operandi of vitamin D or viosterol, particularly under conditions in which a real hypervitaminosis is encountered. Is absorption of calcium or phosphorus or both augmented in undue degree or do these elements fail

1. Hess, J. H.; Poncher, H. G.; Dale, M. L., and Klein, R. I.: Viosterol (Irradiated Ergosterol): Prophylactic and Therapeutic Dosage, J. A. M. A. **95**: 316 (Aug. 2) 1930.

to be eliminated to the usual extent, so that a marked positive balance ensues, leading to a surfeit accumulation in the organism? Or, again, are stores like that in the bones mobilized to such an extent by overdosage of vitamin D that calcium and phosphorus circulate in excessive amounts, thereby injuring receptive tissues? There have already been numerous investigations of these questions. Calcium deposits have been described for the kidneys and aorta. It is admitted that hypercalcemia and hyperphosphatemia occur.[2] The latest studies of Watchorn [3] in the Biochemical Laboratory, Cambridge, England, confirm the fact that the deposit of calcium found in certain tissues as the result of large doses of viosterol cannot be accounted for on the grounds of increased absorption and retention. As Watchorn points out, the source of this calcium must be looked for elsewhere, and, unlikely as it appears *a priori* that the action of large doses of a substance that normally aids calcification of the bones should be in the reverse direction, it is difficult to see where the deposited calcium comes from if not from the bones. Although it has been shown that the danger of moderate doses of viosterol is not as great as feared at first and that the dosage may be safely increased in accordance with the action of the Council, the whole question of the action of vitamin D is far from being solved.

ORAL IMMUNIZATION AGAINST PNEUMOCOCCI

Successful immunization against specific infections by oral administration of killed micro-organisms or microbic products would be a major therapeutic advance, since it might free the public mind from its main objections to vaccine therapy. Thus far, laboratory studies have not been encouraging. Apparently most of the suggested oral vaccines are so rapidly destroyed or denatured in the gastro-intestinal tract as to lose completely their antigenicity. Perhaps they take on new antigenicities not specifically protective. Oral immunization, therefore, will presumably be limited to the relatively few vaccines sufficiently resistant to gastro-intestinal denaturization to be absorbed practically unchanged in effective immunizing doses. The most resistant group of micro-organisms thus far studied are apparently the pneumococci. Recently, successful oral vaccines against pneumococci are reported to have been developed by Dr. Victor Ross of the Board of Health Laboratories in New York.

In earlier researches, Ross demonstrated that rats fed with tissues of animals killed by type I pneumococci acquire an increased resistance to intraperitoneal injections with this pneumococcic type [1] and that a similar though less regular type-specific immunity could be conferred by repeated feedings with living cultures.[2] Rats thus immunized would tolerate intraperitoneal injection of from 1,000 to 10,000 minimal lethal doses of type I pneumococci, the acquired type-specific immunity lasting for at least four months.[3] In his hands, heat killed pneumococci afforded little or no oral protection,[2] nor were degraded avirulent pneumococci successful immunizing agents.[4] The development of a successful oral vaccine, therefore, apparently depended on the discovery of a method of devitalizing fully virulent test tube cultures in such a way as not to alter or destroy their initial antigenicity.

Successful methods of homologous devitalization now seem to have been found.[4] Ross reports that pneumococci grown in milk can be devitalized at 60 C. and still function as fairly successful oral vaccines. His most successful devitalizations, however, are desiccated, mechanically disrupted (agate mortar) virulent pneumococci, pneumococci killed by hydrochloric acid, and Berkefeld filtrates from pneumococci dissolved in bile or in sodium glycocholate. Less successful results were obtained with specific polysaccharides isolated from pneumococci.[5]

Ross's most encouraging results are his demonstration of the astonishing rapidity of development of type-specific immunity following such oral vaccinations. "The increased resistance to the virulent pneumococcus is present . . . forty-eighty hours after the material is ingested and can occasionally be detected to a smaller degree at the end of twenty-four hours." In the few clinical trials thus far made, Ross reports that "no apparent discomfort has been found to follow the ingestion . . . of acid killed pneumococci . . . [by patients in doses] much larger than would be required if dosage is calculated on the basis of [relative body] weight." From the theoretical point of view, Ross's "inability to find agglutinins and precipitins in the serums of [orally] immunized animals" and his "uncertainty whether the immunity need . . . be accompanied by an increase in protective value of the serum" is suggestive in its bearing on the newer theories of specific antibody formation.[6]

It is to be hoped that Ross's encouraging researches will not be handicapped by premature clinical or commercial exploitation. It still remains for him to determine whether or not oral vaccines are equally

2. Ashford, C. A.: The Phosphorus Distribution in Blood and the Calcium and Phosphorus Excretion During Hypervitaminosis D., Biochem. J. **24**: 661, 1930.
3. Watchorn, E.: The Absorption and Excretion of Calcium and Phosphorus by Rats Receiving Excessive Doses of Irradiated Ergosterol, Biochem. J. **24**: 631, 1930. Brown, H. B., and Strobel, A. T.: J. Biol. Chem. **83**: 245, 1930.

1. Ross, Victor: Immunity to Pneumococcus Produced in Rats by Feeding Tissues of Animals Killed by the Same Organism, J. Immunol. **12**: 219 (Sept.) 1926.
2. Ross, Victor: Immunity to Pneumococcus Produced in Rats by Feeding Them the Germ, J. Immunol. **12**: 237 (Sept.) 1926.
3. Ross, Victor: Response of Orally Immunized Rats to a Second Injection of Pneumococcus and the Minimum Duration of Immunity, J. Immunol. **12**: 323 (Oct.) 1926.
4. Ross, Victor: Oral Immunization Against Pneumococcus, J. Exper. Med. **51**: 585 (April) 1930.
5. Ross, Victor: Effect of Feeding Specific Polysaccharide on Resistance to Pneumococci, Proc. Soc. Exper. Biol. & Med. **27**: 658 (April) 1930.
6. Jordan, E. O., and Falk, I. S.: The Newer Knowledge of Bacteriology and Immunology, University of Chicago Press, 1928, chapter 81, p. 1078.

effective for other than type I pneumococci and, if so, whether or not a polyvalent oral vaccine is effective with laboratory animals. Above all, it must be determined whether or not orally acquired systemic immunity to pneumococcic infections is accompanied by an increased specific resistance to pulmonary infection. Too little is known of the relation of systemic resistance to alveolar defense to allow one to dogmatize on this subject. Terrell's [7] generalization that, with local pneumococcic infections, "circulating antibodies appear to have little effect in preventing the spread of the process or determining the outcome of the disease" illustrates the dangers of reasoning from conventional immunologic preconceptions in this disease.

Current Comment

THE CARDIAC OUTPUT IN HEART DISEASE

The output of the heart is of the utmost importance in maintaining the circulation. The amount of blood that passes through the entire body and is available for the metabolism of the tissues depends on the quantity of blood that leaves the heart in each unit of time. It is a well established physiologic fact that the cardiac output may remain constant despite considerable variations in arterial resistance and in the rate of the beat. The primary factor that determines changes in the output is the venous inflow into the heart. As Starling pointed out, the alterations in the vigor of the circulation depend in the first instance on the venous circulation. The greater the volume of the blood that is brought to the heart by the accessory factors of the circulation, the greater will be the output of this organ. Thus the heart is able to vary its output and the work it does according to requirements. A rise in blood pressure within normal limits caused by increased resistance makes no difference to the output except for a few beats. At first the heart fails to drive out its contents adequately, but if the venous inflow is maintained this becomes added to the retained blood to distend the ventricles, which in turn contract more forcibly and overcome the resistance. This phenomenon is sometimes described as the law of the heart. Most of the features that it involves have been ascertained by experiments on animals. In recent years, however, indirect methods have been applied to study the problems involved in man, and of late the conditions existing in persons with heart disease also have been investigated.[8] Experiments at the Peter Bent Brigham Hospital in Boston by Alt, Walker and Smith [8] have included patients with compensated heart disease, chronic myocarditis, and complete heart block who were subjected to moderate, standardized grades of work on the Krogh bicycle ergometer. Measurements were made of the cardiac output, pulse rate and blood pressure during exercise. The response of the cardiac output in the patients with heart disease was not essentially different from the response in the normal person. The Boston clinicians remark that this is consistent with the work of some authors who have found that the output of the heart is a function of the respiratory metabolism. If the heart could not have maintained an adequate circulation with the grade of work used, they add, a cumulating oxygen debt would have ensued and exercise could not have been continued for a long period. Although the response of the cardiac output was quite similar in all of the persons studied, several of the patients with heart disease experienced dyspnea, fatigue and general distress, symptoms that were almost negligible in the normal subject. These adverse subjective reactions were not related to any considerable variation in the measurable cardiac output. Hence Alt, Walker and Smith properly point out that there are yet some unknown factors present in the circulatory mechanism of patients with heart disease. These are manifested by symptoms of dyspnea and fatigue on exertion but are at present unmeasurable by determinations of the cardiac output, stroke volume, vital capacity or respiratory minute ventilation.

BODY FLUID VOLUME IN EPILEPSY

A close association exists between acid-base balance and fluid movement in the body. Edema and dehydration are in large part the resultants of an abnormal disturbance of electrolyte equilibrium. Obviously, therefore, should occasion require, fluid volume can within limits be adjusted by the expedient of manipulating the acid-base balance. It has been indicated [1] that in epilepsy there exists an excess of fluid volume in the supracortical spaces, and one of the modes of treatment that has proved generally efficacious consists of dehydration both through limitation of water and by the ketogenic diet.[2] A somewhat different aspect of the factor of change in body fluid in epilepsy has recently been pointed out by Gamble,[3] who emphasizes the essential automatic defense mechanism of the body during the period of seizure. The acid-base excretion of a patient was observed over the period of seizures, approximately two days, as well as over the four to seven days intervening. It was observed that an irregular excretion of base occurred but with pronounced increases during the attacks, in spite of the fact that the patient was on a diet providing a constant intake of fixed base. Since this periodic accentuated loss was accounted for by sodium rather than by the other bases, it appears that an accompanying loss of body fluid took place, an interpretation supported by the corresponding variation in the volume of urine. Whether or not the loss of base and fluid is caused by the nervous manifestations, the observed correlation will serve as additional evidence in elucidating the details of the pathogenesis of epilepsy.

7. Terrell, E. E.: Changes in Humoral Immunity Occurring During the Early Stages of Experimental Pneumococcus Infection, J. Exper. Med. **51**: 425 (March) 1930.

8. References to the literature are given by Alt, H. L.; Walker, G. L., and Smith, W. C.: The Cardiac Output in Heart Disease: II. Effect of Exercise on the Circulation in Patients with Chronic Rheumatic Valvular Disease, Subacute Rheumatic Fever and Complete Heart Block, Arch. Int. Med. **45**: 958 (June) 1930.

1. Fay, Temple: The Therapeutic Effect of Dehydration on Epileptic Patients, Arch. Neurol. & Psychiat. **23**: 920 (May) 1930.

2. Dehydration in the Treatment of Epilepsy, Current Comment, J. A. M. A. **94**: 721 (March 8) 1930.

3. Gamble, J. L.: Epilepsy, Arch. Neurol. & Psychiat. **23**: 915 (May) 1930.

Association News

MEDICAL BROADCAST FOR THE WEEK

American Medical Association Health Talks

The American Medical Association broadcasts at 10 a. m. on Monday, Tuesday and Saturday, over Station WBBM (770 kilocycles, or 389.4 meters).

The program for the week is as follows:

October 6. Why Worry?
October 7. Why Worry?
October 11. The Traveling Worrier.

Five minute health talks may be heard over the Columbia Broadcasting System daily except Sundays and holidays, from 12 to 12:05 p. m.

The program for the week is as follows:

October 6. Where Do People Die?
October 7. The Poison Ivy Pest.
October 8. The Sore Throat Danger Signal.
October 9. Everybody's Business.
October 10. Infections Spoil Complexions.
October 11. New Hazards for Old.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Society News.—During the session of the Northwest District Medical Society, October 3-4, a portrait of Dr. Josiah Clark Nott, founder and first professor of surgery at the University of Alabama Medical School at Mobile, will be unveiled by Mr. James Van Antwerp, the donor. The guest of honor on the clinical program to be given entirely by Mobile graduates will be Dr. John A. Lanford of the University of Louisiana School of Medicine, New Orleans. On Saturday the visitors will be guests at the Alabama-Mississippi football game.

CALIFORNIA

A Million for the Sick Poor.—The largest bequest in the $10,000,000 will of the late Senator James D. Phelan, filed for probate in San Francisco, was $1,000,000 to create the James D. Phelan Foundation to assist without distinction as to nationality, creed or sex in relieving the sick poor of the city and county of San Francisco from disease and suffering and for employing and furnishing nurses to care for them, primarily, in their homes. The trustees are authorized to obtain nurses when necessary, and when nursing service is unnecessary to apply the income to assist the needy sick to personal comfort and quick recovery.

Condemnation of Walnuts.—A survey recently made by the United States Department of Agriculture and the state department of agriculture cooperating with the state department of public health, has revealed that during the season of 1929-1930 a total of 1,594,263 pounds of off-grade walnut meats were condemned. These products consisted of walnut meats that were moldy, rancid or infested with worms, and were placed in sacks and quarantined. The purpose of this inspection of nut cracking establishments, wholesale candy factories and wholesale bakeries as well as cold storage plants, was for the removal of faulty products from the market for the benefit of the public.

Spider Poisoning.—Several fatal cases of poisoning caused by the bite of the so-called "black widow" spider were reported in California this summer. This spider, said to be the only poisonous spider in the country, inhabits the lower half of the United States from coast to coast and obtains the name "black widow" from its custom of eating its mate. The body of the female, which is always responsible for the bites, is often one-half inch in length, brilliantly marked with red or yellow or both, in an hour glass design, and the long shiny black legs may stretch over a spread of as much as 2 inches. In fatal cases death generally occurs in from fourteen to thirty-two hours. A convalescent blood serum, taken from individuals who have recovered from bites of this spider, has been used successfully in the treatment of acute cases.

COLORADO

State Medical Election.—Dr. William A. Kickland, Fort Collins, was installed as president of the Colorado State Medical Society at its annual meeting at Pueblo, September 9-11. Dr. Edward Delehanty, Denver, was made president-elect; Drs. Edgar D. Downing, Woodmen; George M. Noonan, Walsenburg; Isaac L. Gotthelf, Saguache, and Frank W. Lockwood, Fort Morgan, vice presidents, and Drs. Lorenz W. Frank, Denver, and Leo W. Bortree, Colorado Springs, constitutional secretary and treasurer, respectively. Mr. Harvey T. Sethman is the executive secretary of the society.

ILLINOIS

Society News.—Dr. Robert S. Berghoff, Chicago, presented a paper to the McLean County Medical Society, September 9, on "Syphilis of the Heart."——The Quincy Physicians' Club will be addressed, October 6, by Dr. Edmund B. Montgomery on progress in gynecology.——The Peoria Medical Society was addressed, September 16, by Dr. John S. Coulter, Chicago, on "Physical Therapy in General Practice."——Dr. Irving S. Cutter, dean, Northwestern University Medical School, addressed the Rock Island and Moline physicians' clubs in Rock Island, September 16, on "Relation of Cultural Medicine to Medical Practice."——The Alexander County Medical Society was addressed, September 19, at Cairo by Dr. Alexander Brunschwig, Chicago, on "Rare Diseases of the Epiphyses of the Bones of the Extremities."

Chicago

Personal.—Sir James Purves-Stewart of London was guest of honor at a dinner given, September 16, under the auspices of the Chicago Institute of Medicine, the Chicago Society of Internal Medicine, and the Chicago Neurological Society, allied organizations and members of the faculty of Northwestern Medical School.——Dr. Frederick O. Tonney, for many years director of research laboratories of the health department, was recently transferred to the laboratory of the Municipal Contagious Hospital, where he will organize a research department.

IOWA

Society News.—The forty-third annual meeting of the Medical Society of the Missouri Valley will be held in Des Moines, October 15-17, with headquarters at the Fort Des Moines Hotel. The guest speakers will include Drs. Russell M. Wilder, whose subject will be "Glycosurias Other Than Diabetes Mellitus"; Loyal E. Davis, Chicago, "Surgical Treatment of Intracranial Meningiomas"; Willard Bartlett, St. Louis, "A Concept of Thyroidectomy Technic of Today," and Joseph Colt Bloodgood, Baltimore, "Cancer of the Skin and Oral Cavity—A Preventable Disease."——At the Lucas County Medical Society meeting, September 2, motion picture films concerning movements of the alimentary tract in experimental animals and emergency operations, liver-stab wound and bullet wound in the bladder were viewed.——The Scott County Medical Society was addressed, September 2, by Dr. James C. Masson, Rochester, Minn., on "Extra-Uterine Pregnancy."——The Washington County Medical Society was addressed at its annual meeting, September 2, by Dr. George A. Jenkins, Albia, on "The Country Doctor"; Dr. William A. Rohlf, president, state medical society, spoke on various state society matters.——The Upper Des Moines Medical Society, composed of physicians from Clay, Dickinson, Emmet and Palo Alto, held its annual meeting at Spirit Lake, August 14; the following physicians from Rochester, Minn., spoke: Hugh Cabot, on "Relation of the Catheter to So-Called Catheter Cystitis"; Harry M. Conner, "Treatment of Pernicious Anemia"; William H. D. Goeckerman, dermatitis; Roger L. J. Kennedy, "Chronic Laryngeal Stridor."——Dr. Richard H. Jaffe, Chicago, addressed the Des Moines Academy of Medicine and the Polk County Medical Society, September 30, on "Visceral Changes in the Late Stages of Acquired Syphilis, with Special Reference to Syphilitic Aortitis."——The Ringgold County Medical Society was addressed, September 18, at Mount Ayr, by Dr. Fred Moore, Des Moines, on "Infant Feeding."——The Dubuque County Medical Society was addressed at its annual meeting, September 23, by Dr. Nelson M. Percy, Chicago, on "Appendicitis and Intestinal Obstruction," and Clarence W. Baldridge, Iowa City, "Recent Developments in Diseases of the Blood";

a motion picture of "Management of Breech Presentation" was presented by Dr. David A. Horner, Chicago.——Dr. William M. Rohrbacher, Iowa City, spoke on "Use of Ultraviolet Ray in Vincent's Angina" before the Johnson County Medical Society, July 2.

KENTUCKY

Society News.—The Daviess County Medical Association was addressed, September 9, by Drs. Isaac J. Hoover, "Use of Sodium Amytal as an Anesthetic Agent," and Francis M. Sherman, Owensboro, on "Indications, Contraindications and Complications of Ethyl Anesthesia."——The Letcher County Medical Society was recently addressed at Jenkins by Drs. Robert L. Kelly, Louisville, on "Syphilis and Its Treatment"; Albert G. Rutherford, Welch, W. Va., "Head Injuries," and William W. Nicholson, Louisville, "Summer Diarrheas."——Physicians of Graves, Calloway, Hickman and Fulton counties were addressed, September 30, among others, by Dr. Arthur G. Quinn, Memphis, Tenn., on "Diseases of the Thymus Gland in Infants."

MARYLAND

Personal. — Dr. Thomas S. Cullen, professor of clinical gynecology, Johns Hopkins University School of Medicine, Baltimore, was presented with the degree of doctor of laws by the University of Toronto at a special convocation, September 16, in connection with the opening of the Banting Research Institute. The honor was conferred in recognition of Dr. Cullen's work on cancer. He graduated as a silver medalist from the University of Toronto forty years ago.

Hospital News.—The new addition and the added facilities at the Emergency Hospital, Annapolis, were completed, October 1, and will give the hospital 100 beds and double its present capacity. This hospital is affiliated with the Johns Hopkins Hospital, Baltimore, and the Sheppard and Enoch Pratt Hospital, Towson; a two months' course in pediatrics is studied at Johns Hopkins Hospital and a three months' course in psychiatry at the Sheppard and Enoch Pratt Hospital.——The discovery of a kitchen helper connected with the preparation of food for employees in the Johns Hopkins Hospital, who was a "walking typhoid case," was recently reported.——The new hospital at Fort George G. Meade, with accommodations for 100 patients, has been completed at a cost of $243,233.

County Health Service in Maryland.—Dr. William S. Keister has been transferred from Prince Georges County to become full-time health officer for Baltimore County with headquarters at Towson, and Dr. Archie B. Hooton will be full-time health officer for Prince Georges County with headquarters at Upper Marlboro. Dr. Hooton has been in charge of the health unit in Darlington County, S. C., for the past eight years. Dr. Robert H. Riley, director, state department of health, stated that arrangements are under way for the appointment of a full-time health officer for Anne Arundel and Washington counties. When this is completed, fourteen counties, having a population of 653,000, or four fifths of the total population of the counties, will have full-time health service. Six of the remaining counties—Caroline and Dorchester, Charles and St. Mary's, and Somerset and Worcester—with a population of 120,527, or 14 per cent of the total population of the counties, are grouped into sanitary districts with a full-time deputy state health officer in charge of each district. The three counties with part-time service, Garrett, Howard and Queen Anne's counties, have a combined population of approximately 50,000 and constitute 6 per cent of the total population of the counties. Dr. Riley states that the goal set for the state is full-time health service for each county corresponding to the full-time educational service which is already established for each county.

MASSACHUSETTS

Dr. Knoop Gives Dunham Lectures.—Dr. Franz Knoop, professor of physiologic chemistry and director of the Institute for Physiological Chemistry, University of Tübingen, will deliver two lectures at the Harvard Medical School, October 15 and 17, at 5 o'clock, under the Edward K. Dunham Lectureship for the Promotion of Medical Sciences; the subject will be "Intermediary Metabolism."

Society News. — The Berkshire District Medical Society was addressed, September 19, by Dr. Edward A. Archibald, professor of surgery at McGill University Faculty of Medicine, Montreal, on "Indications for Surgery in Pulmonary Tuberculosis."——The New England Surgical Society, at its annual meeting, September 26-27, at Boston, was addressed by Drs. Richard S. Benner, Springfield, "Uterine Fibroids and Pregnancy"; Carleton R. Metcalf, Concord, N. H., "Atelectasis"; Daniel C. Patterson, Bridgeport, Conn., "A Case of Kohler's Disease"; Emery M. Fitch, Claremont, N. H., "Some Causes of Failure in the Operative Treatment of Inguinal Hernia"; Thomas N. Hepburn, Hartford, Conn., "Denervation and Displacement of the Ureter for Kidney Colic"; Paul P. Swett, Hartford, Conn., "Fractures of the Head of the Tibia Entering Into the Knee Joint," and Frederic J. Cotton, Boston, "Notes on Tumors and Near Tumors of Bone." A symposium on the vascular lesions of the extremities and a series of clinics were included in the program.

MICHIGAN

Personal.—The championship of the annual golf tournament of the Wayne County Medical Society, September 10, was won by Dr. Frank A. Kelly; the handicap championship was won by Dr. Wesley J. Reid.——Dr. Frederick Williamson was appointed health officer of Ypsilanti, September 15, to succeed Dr. Matthew E. Soller, who resigned to be connected with the extension department of health of the University of Michigan.

Society News.—At the annual golf tournament between the Kalamazoo Medical Academy and the Calhoun County Medical Society, the silver tournament cup was won by Kalamazoo physicians.——Drs. John H. McRae and Richard R. Smith, both of Grand Rapids, spoke on "Experience of Eye Work in India" and "Travelogue and Experience in India," respectively, before the Montcalm and Ionia County Medical Society at Belden, September 9.

Entrance Requirements Raised at University of Michigan.—Added entrance requirements in the University of Michigan Medical School, which will demand nearly a year of extra preparatory work, were announced, September 23, according to the Chicago *Tribune*. Candidates for the M.D. degree will be required to take ninety instead of seventy hours of credit, and one third instead of one fourth of their grades for entrance must be B's. The new ruling, it is reported, will be effective next fall.

MINNESOTA

Society News.—Dr. J. Theodore Schlesselman, Mankato, was elected president, and Dr. Monte C. Piper, Rochester, secretary of the Southern Minnesota Medical Association at its recent annual meeting.——The Chisago-Pine County Medical Society was addressed at Pine City, August 26, by Drs. Carleton G. Kelsey, Hinckley, on "Eczema of the Scrotum"; William T. Pearson, Finlayson, "Various Methods of Tonsillectomy"; Egbert J. Borgeson, Minneapolis, "Relation of Nose and Throat Infections to the Chest," and Francis F. Callahan, Pokegama, "Collapse Therapy," illustrated.

MISSISSIPPI

Tennessee Teachers to Assist Mississippi School of Medicine.—In the reorganization of the faculty of the School of Medicine of the University of Mississippi, assistance will be given by William R. Amberson, Ph.D., head of the department of physiology, University of Tennessee Medical School, and his assistants. Dr. Amberson and Arthur G. Mulder, Ph.D., will deliver special lectures, and Frederic R. Steggerda will stay in charge of the classes. Dr. Philip L. Mull, professor of anatomy, has assumed the duties of dean.

NEBRASKA

State Fair Health Program.—The health department at the Nebraska State Fair conducted by the Nebraska State Medical Association was conducted by 132 physicians this year. Periodic health examinations were given to 412 babies and children, 199 adults; eight prenatal examinations to expectant mothers, and examinations of thirty-two 4-H Club boys and girls. These examinations revealed that 91 per cent of the adults and 80 per cent of the children had defects in need of medical attention. Of the 412 babies and children examined, only 63 had been vaccinated. In the 109 audiometer tests for acuity of hearing, the average hearing loss was 9 per cent. In the system used, all examination records are sent to the family physician designated by the patient, and the patients and parents are notified to call on their physician for interpretation of the record and advice regarding treatment. The state medical association had charge of all health displays and demonstrations, which were under the direction of Dr. Edward R. Hays, Falls City, chairman of the Public Activities Committee, who has also been made superintendent of health on the state fair board. The department occupied all of the building formerly designated as the women's building. The association operated a roentgen-ray and clinical laboratory, a large room for exhibits, and a theater which was used for lectures

and motion pictures. They supervised also the emergency hospital, which cared for cases of acute illness and injury. The supervision of health activities was started in 1929 (THE JOURNAL, July 29, 1929, p. 215).

NEW JERSEY

Society News.—The Atlantic County Medical Society will be addressed, October 10, at Atlantic City by Dr. Edward A. Strecker, Philadelphia, on "The Psychology of the Normal Child."——The Morris and Warren county medical societies were addressed at Bernardsville, July 16, by Dr. Richard Kovacs, New York, on "Physical Therapy in General Practice."

NEW YORK

Society News.—The First District Branch Medical Society will be addressed, October 7, at the Academy of Medicine, New York, by Drs. Elliott P. Joslin, Boston, on "Symptomatology and Treatment of Diabetes"; Frank H. Lahey, Boston, "Toxic Goiter," and John J. Moorhead, New York, "Fractures."——The Medical Society of the County of Nassau was addressed at Hempstead, September 30, by Dr. Richard Kovacs, New York, on "Use of Diathermy in Medicine and Surgery," illustrated.

New York City

Much Less Diphtheria.—Figures recently made public, disclosed a reduction of 57 per cent each in diphtheria cases and deaths in the city in the first eight months of 1930 as compared with the corresponding period of 1929. There were 3,003 cases of diphtheria, as compared with 7,020 in the corresponding period of last year. There were 158 deaths, as against 374 in the first eight months of 1929. It is reported that the case decrease of 4,017 and the mortality decrease of 216 sets a new record in toxin-antitoxin work. The Diphtheria Prevention Commission of the department of health has been conducting an intensive campaign against diphtheria for twenty months.

OHIO

Society News.—The Summit County Medical Society will be addressed, October 7, at the Akron City Club by Dr. John A. Kolmer, Philadelphia, on "The Serology and Treatment of Syphilis."——The commissioners of Portage County have under consideration the gift offered by the heirs of Judge and Mrs. George F. Robinson, which include the Robinson homestead and $50,000 in cash, the cash to be used with county funds for the building and equipment of a new hospital. A bond issue of $75,000 is said to be contemplated to carry the project through.——The Muskingum Academy of Medicine and the district dental association met jointly, September 10, at Zanesville and were addressed by Dr. Hugh W. MacMillan, Cincinnati, on "Oral Surgery," and Dr. Beatrice A. T. Hagen, Zanesville, anesthesia.

OKLAHOMA

Society News.—The Jefferson County Medical Society was addressed, July 7, at Waurika, by Drs. W. M. Browning, on "Rational Treatment of Abortion"; Clinton M. Maupin, "Use of Digitalis and Strophanthus in Heart Affection," and James I. Hollingsworth, "Uterine Atresia," with report of a case. ——The Tulsa County Medical Society was addressed, September 22, by Dr. Samuel C. Shepard on "Erysipelas, a New Method of Treatment."

OREGON

Society News.—A new medical journal, called the *Western Journal of Surgery,* has started publication in Portland. Dr. Goodrich C. Schauffler, the editor, states that the *Journal* will be devoted to unifying surgical interests of the western coast by publication of suitable papers, discussions, reports of surgical meetings and allied gatherings.——The Lane County Medical Society, cooperating with the Southern Willamette District Dental Society and the Lane County Graduate Nurses Association, maintained an exhibit during the Lane County fair at Eugene, August 27-30, which featured displays on periodic health examinations, dental health, quackery, and *Hygeia.*—— The annual conference of city and county health officers was addressed, September 16-19, among others, by Drs. Benton C. Wilson, Medford, on "The Full-Time Health Unit"; Bertram R. Shoemaker, Roseburg, "Preventive Pediatrics"; William Levin, D.P.H., Portland, "Skin Test for Immunity and Diagnosis"; Clarence J. McCusker, Portland, "Reducing Maternal Mortality," and Paul M. Drake, Coquilla, "Diphtheria Control."

Personal.—A complimentary dinner was tendered Dr. John F. Dickson, August 28, on the occasion of his seventy-fifth birthday, by the Pacific Coast Oto-Ophthalmological Society.

TENNESSEE

University News.—The location of the new Meharry Medical College will be near Fisk University in North Nashville, with which the medical school will cooperate, but there will be no connection between the managements of the two institutions and each will keep its own identity. It is said that the new plant is to cost $2,000,000. During the past year 2,160 patients were treated in the hospital, of which 1,928 were charity and 14,103 cases were treated in the clinics.

Society News.—The Nashville Academy of Medicine was addressed, September 23, by Dr. Jefferson C. Pennington on "Significance of Urethral Discharge in the Male." The academy was addressed, September 16, by Dr. Charles Sidney Burwell on "A Clinical Study of Adhesive Pericarditis."——The Tri-County Medical Society, comprising McMinn, Monroe and Loudon counties, was addressed, September 18, at Lenoir City, by Drs. Robert C. Kimbrough, Madisonville, on "Pneumonia"; James B. McElroy, Memphis, "Ascites," and James G. Eblen, Lenoir City, who talked on "Some Diagnostic Points on Diseases in Infancy and Early Childhood."——The Bedford County Medical Society was addressed, August 21, by Dr. John W. Sutton, Petersburg, on colitis.——Dr. Jarrell Penn, Memphis, addressed the Gibson County Medical Society, September 29, on "The Commoner Orthopedic Conditions," and Dr. G. Weldon Oliver, Medina, on "Pernicious Vomiting of Pregnancy."——The Hamilton County Medical Society was addressed, September 4, by Dr. Robert C. Robertson, Chattanooga, on "Aspects of Low Back Pain: Report of Three Cases"; Dr. Olango G. Hughes addressed the society, September 11, on eclampsia.——"The Early Correction of Cross-Eyed Deformities" was the subject of Dr. David Bruce P'Pool, Nashville, among others, before the physicians of Hardin, Lawrence, Lewis, Perry and Wayne counties at Hohenwald, August 27.——The Coffee County Medical Society was addressed, September 9, at Manchester, by Dr. Charles E. Evans, Tullahoma, on "Artificial Feeding of Babies."——The Tri-County Medical Society (Carroll, Weakley, Henry and Benton) was addressed at Huntington in September by Drs. William W. Wilkerson, Jr., on "Foci of Infection"; Emmett E. Brown, Nashville, "X-Ray Diagnosis of Pulmonary Tuberculosis," and Virgil E. Massey, Huntingdon, "The Importance of a Careful History."

TEXAS

New Children's Hospital and School.—A new children's hospital, constructed by the state as a unit of the state tuberculosis sanatorium at Sanatorium was ready for occupancy, October 1. The hospital, which will accommodate 161 patients, is two stories high, 406 feet long and 60 feet wide. A feature in connection with the institution is that an eleemosynary independent school district has been formed at the sanatorium with an affiliation of the state department of education. This will afford children in the district to continue school work from the first to seventh grades inclusive. The institution is also provided with a completely equipped playground. Applicants admitted to the sanatorium are given six months' treatment; an additional three months will be extended the patient if the superintendent deems his physical condition can be found improved by this additional time. The institution will accept only children with early pulmonary or glandular tuberculosis; cases in the advanced stage of tuberculosis cannot be accepted by law. Cases of tuberculosis of bones and joints are referred to the John Sealy Hospital at Galveston.

Society News.—The Dallas Eye, Ear, Nose and Throat Society recently gave a banquet in honor of Dr. Viktor Frühwald, University of Vienna.——The Dallas County Medical Society was recently addressed by Drs. Claude E. Watson, Dallas, and Edgar Hull, Pleasant Hill, La., on "Latent Malaria" and "Management of Hypertension," respectively.—— Dr. Martin L. Wilbanks, Greenville, addressed the July 8 meeting of the Denton County Medical Society on "Public Health Laws as They Pertain to Vital Statistics." Texas physicians are endeavoring to secure registration of 90 per cent of births and deaths, which is required before the state can be included in the registration area.——Dr. Allen T. Stewart, Lubbock, addressed the Lubbock-Crosby Counties Medical Society, July 1, at Lubbock, on "Eclampsia."——"Progression in Medicine" was the subject of Dr. Moses Thompson, Weatherford, before the July 1 meeting of the Parker County Medical Society.——The program of the Southwest Texas District Society, July 22-23, included addresses by the following San Antonio physicians: Harry McC. Johnson, Jr., "Diagnosis and

Treatment of Renal Tumors"; Omer M. Roan, "Intussusception of the Small Intestine Caused by Benign Tumors"; L. P. Guttman, Corpus Christi, "More Efficient Fracture Surgery by Local Anesthesia and Functional Therapy," and John V. Blair, Corpus Christi, "Endothermic Surgery as a Factor in the Treatment of Malignancy."

GENERAL

Qualifications of Nurses.—More than 4,000 physicians recently replied to a questionnaire sent out by a committee on the grading of nursing schools, as to what qualifications a nurse should have; 65 per cent of these physicians replied "skill in general care" was the requisite of a good nurse; 65 per cent wanted one that could make the patient comfortable; 45 per cent wanted one skilful in observing and reporting symptoms; 43 per cent preferred a nurse careful in following medical orders; 34 per cent said good breeding and attractive personality come first; 30 per cent skill in handling people; 28 per cent skill in asepsis; 27 per cent familiarity with hospital routine; 21 per cent familiarity with their personal methods; 15 per cent, ability to work under a heavy strain; 15 per cent, familiarity with a particular disease; 3 per cent said she should be able to take charge of the family, and 3 per cent that she should be a mother's helper and houseworker. The study shows that the demand for practical nurses is dropping. Nine out of ten physicians reported they were getting the nurses they wanted. The surgeons were the group most satisfied.

Thousands of Cases of "Jamaica Ginger Paralysis."—The U. S. Public Health Service recently announced that triortho-cresol phosphate has been determined to be the probable cause of the recent "ginger jake" epidemic. The chemical is said to be widely used in the liquor and leather industries. It is colorless, odorless and capable of causing paralysis and death in the case of persons who have consumed it in alleged fluid-extracts of ginger, popularly called "ginger jake." Chemists assert that alcohol with a paralysis-producing adulterant has been used by underworld liquor manufacturers in order to make ginger extract drinkable and cheap, but deny that it could have been used as a government denaturant. According to the public health service, information received from forty-seven state health officers showed that 4,837 cases of jamaica ginger paralysis have been officially reported. It is estimated, however, that many cases were not reported officially. It is understood that the director of the bureau of prohibition of the department of justice estimates that approximately 20,000 cases of this condition have occurred in the United States. July 29, it was reported that twenty-one men, including eighteen from New York City and Brooklyn and three from Kansas, and six Brooklyn and New York corporations were indicted for conspiracy to violate federal laws following an investigation into the manufacture, distribution and sale of adulterated jamaica ginger.

Society News.—The examination of the American Board for Ophthalmic Examination will be held at the Illinois Eye and Ear Infirmary, Chicago, October 27; Dr. William H. Wilder, 122 South Michigan Avenue, Chicago, is secretary of the board.——Drs. Frank H. Ewerhardt, St. Louis, Mo., and Frederick L. Wahrer, Marshalltown, Iowa, were elected president and secretary, respectively, of the American Congress of Physical Therapy for 1931-1932 at its recent annual meeting. ——The annual meeting of the Association of Medical Record Librarians of North America will be held in Philadelphia, October 13-17.——The western meeting of the National Academy of Sciences, September 18, at Berkeley, was addressed by Drs. L. Frederick Reichert, San Francisco, on "Importance of Circulatory Balance in Survival of Replanted Limbs"; Carl L. A. Schmidt, Ph.D., San Francisco, "Relation of Bile to Intestinal Absorption of Vitamin A in the Rat," and David L. Webster, Ph.D., Stanford University, Calif., "Effects of Rediffusion of Cathode Rays on X-Ray Structure."——Officers elected at the annual meeting of the Aero Medical Association in Chicago, August 29-30, were Drs. Louis H. Bauer, Washington, D. C., president; Ralph N. Greene, Jacksonville, Fla.; Frederick C. Warnshuis, Grand Rapids, Mich.; Charles H. Gowan, Glendale, Calif.; Harold M. Camp, Monmouth, Ill., and John A. Tamisiea, Omaha, vice presidents, and William B. Smith, Hartford, Conn., secretary. The program consisted of papers by Major Raymond F. Longacre, U. S. Army, presented by Dr. Harold J. Cooper, Washington, D. C., on "Factors in Examination of the Nervous System in Pilots"; Dr. Albert J. Herbolsheimer, Minneapolis, "Certain Factors in Examination of the Eyes of Aviators"; Dr. Greene, Jacksonville, "Practical Suggestions by a Pilot-Flight Surgeon," and Dr. Bauer, "Certain Aspects of Blind Flying."

FOREIGN

British Medical Association Prize.—The council of the British Medical Association proposes to award in March, 1931, the prize of £25 for the best essay attempting to "describe and discuss cases illustrating the modern methods of diagnosis of early pulmonary tuberculosis." The essay must be written by a final year medical school student or registered medical practitioner of not more than one year's standing; either of whom must be studying or must have studied at one of the medical schools in the British empire outside the British Isles. The essay must reach the medical secretary, British Medical Association House, Tavistock Square, London, W. C. 1, not later than Jan. 12, 1931.

Society News.—The thirty-ninth French Congress of Surgery will be held in Paris, October 6-11. Subjects to be discussed are: pancreatitis, introduced by Pierre Brocq of Paris, and Miginine of Toulouse; traumatic spondylitis (Kummel-Verneuil disease), introduced by Froelich of Nancy and Albert Mouchet of Paris, and preparation of patients for operation, introduced by Lombret of Lille and Sauve of Paris.——The State Institute of Public Health of Oslo, which was formally opened, August 16, includes three buildings equipped with the most modern apparatus for the speedy and exhaustive treatment of illness, and laboratories for research and for dealing with the spread of disease. The total cost of the buildings was about £195,000, of which the state contributed £83,000 and the Rockefeller Institute £61,000.——The annual meeting of the German Society for Light Research was held in conjunction with the German Hygiene Society in Dresden, September 5-7.——The twentieth Congress of the Italian Society of Laryngology, Otology and Rhinology will be held in Sardinia, October 15-23. Further information may be obtained from Prof. Deodato De Carli, Clinica Otorino-laringologica, Ospedale Gesu E Maria, Naples.——The thirtieth French Congress of Urology will be held at the Paris Faculty of Medicine, October 7. A discussion of renal contusions and their remote sequels will be introduced by Dr. Gérard of Lille.——The Society for Digestive and Metabolic Diseases will hold its tenth annual meeting in Budapest, October 6-8.

CORRECTION

Tuberculosis in England.—The statement of the London correspondent in THE JOURNAL, August 2, that every week 70,000 cases of tuberculosis were notified in England and Wales was erroneous. The Ministry of Health has called attention to the fact that 70,000 cases are approximately the number notified in the course of a year.

Government Services

Change of Station in the Navy

The following changes of station in the navy have recently been announced: Lieut. John G. Smith, to the naval hospital, Newport, R. I.; Lieut. William S. Cann, to division 10, destroyer squadron; Lieut. Frederic W. Farrar, to the U. S. S. *Dobbin;* Lieut. Charles W. Shilling, to division 42, destroyer squadron, scouting fleet; Lieut. Comdr. David Ferguson, to the Navy Yard, Pearl Harbor, T. H.; Lieut. John P. Wood, to the Naval Hospital, Great Lakes, Illinois; Lieut. Richard B. Blackwell, to the marine recruiting station, Philadelphia; Lieut. Carr E. Bentel, to the Asiatic Station.

Army Personals

Lieut. Col. William S. Shields, from Fort Sam Houston, Texas, to Fitzsimons General Hospital, Denver; Major Luke B. Peck, having attained the age of 64 years, is retired from active service and placed on the retired list with the rank of lieutenant colonel; Major Philip P. Green, on completion of his present tour of foreign service, will be assigned to duty at Fitzsimons General Hospital; Lieut. Col. Henry C. Coburn, Jr., from Fitzsimons General Hospital to Fort Sam Houston, Texas; Major Clyde C. Johnston, from Selfridge Field, Mount Clemens, Mich., to Kelly Field, Texas; Major Brown S. McClintic, from Fort Benjamin Harrison, Ind., to Fort Sheridan, Ill.; Capt. James A. Ramsey, from the St. Louis Medical Depot, St. Louis, to Fort Sam Houston, Texas; Major Joseph C. Breitling, from Fort Lewis, Wash., to Chilkoot Barracks, Alaska.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 13, 1930.

The Socialization of the Medical Profession

In a previous letter (THE JOURNAL, August 16, p. 543) the adoption by the British Medical Association of a scheme in which a full medical service is to be provided by the state for every person, i. e., the completion of the socialization of the medical profession, was described. It was explained that such socialization was desired neither by the profession nor by the association, but that in the present socialistic phase of British politics such a development was thought inevitable and that it was held to be better for the profession to bring forward a scheme than to have one imposed on it. But this momentous decision is viewed with considerable misgiving by a large minority of the profession, including those who have always regarded the national insurance act as anathema. Their objections were ably voiced by Dr. Graham Little, a dermatologist, who is member of parliament for London University and therefore a prominent figure in medical politics. In an address to the Paddington Medical Society he said that the profession was at the parting of the ways and decisions were about to be taken even more important than that of 1912, when that great step in medical socialism, the national health insurance scheme, came into operation. This was copied by Mr. Lloyd George from the German scheme, and it is interesting to recall that after prolonged discussion it was rejected by the British Medical Association as detrimental to the interests and honor of the medical profession. Then came the coup of Lloyd George who, by increasing the capitation grant, caused a number of physicians to break away from the combination and thus overcome the resistance. Dr. Little described the issue as none less than whether the profession should consent to the extermination of private practice and to the substitution for it of practically universal contract service or universal state medical service. The difference between the two alternatives might not be great, for if contract practice became universal the state would dominate as much as it would any state medical service. He had information that the present socialist government had in preparation a scheme for a state medical service with influential support. The rumor of this had clearly influenced those who controlled the British Medical Association. At the representative meeting resolutions promoted by the council recommending the institution of what amounted to a general panel for the nation, were passed by large majorities. This was brought about by representations by leading members of the council that the alternative for the profession was not private practice or contract practice, because private practice was no longer a tenable proposition, but that the choice lay between the policy promoted by the association and a State service. This policy, said Dr. Little, would bring seven eighths of the whole population into the panel, and private practice would become too precarious to survive for any time. Further, the national health insurance fund was practically bankrupt. It had never been able to furnish the services which the government commission had declared ought to be given — institutional and specialist treatment. Would universal panel practice improve the status of the profession or the conditions of life of the physician? It would be conducted under the continual harassment of outside control. At present the physician had to satisfy patients; under the new régime he would have to satisfy an administrative superior, whose first consideration would seldom be the patient. Medical insurance encouraged recourse to the physician when unnecessary and, as people did not prize what they did not pay for, the services of the physician were less valued. By our system of doles and mollycoddling we were converting our people into loafers and hypochondriacs.

Dr. Little's address has made a great stir and has received lengthy notices in the daily press, by which the belief is expressed that for some time the government has intended to nationalize the medical profession and that alarm caused by this rumor has led the British Medical Association to formulate its scheme. In a press interview with the *Star*, Dr. Little said that he had no doubt that before we realize it we shall have foisted on us an unworkable scheme of automatic medical treatment, good neither for the patient nor for the physician, who would become a civil servant working so many hours a day, with no incentive to become more useful to the world and probably with no opportunity of doing so. But he admitted that the younger generation of physicians might prefer a regular life of work and leisure and a regular income. The *Star* representative could not find any one who could suggest how state doctoring would work out in practice. Would it be illegal to fall ill outside certain prescribed hours? Would the physicians work in shifts and if so what would be the position of the patient who called in his physician three times during the day and night and found himself in the hands of three different men?

Sir Ronald Ross

"Probably the greatest genius living in our times" was the description of Sir Ronald Ross by Sir Aldo Castellani, director of tropical medicine at the Ross Institute. The occasion was a luncheon at the institute to celebrate the death thirty-three years ago of the mosquito in which Sir Ronald Ross discovered the infectious agent of malaria. Sir William Simpson, director of tropical hygiene at the institute, said that Ross's discovery would always be memorable in preventive medicine. It had saved millions of lives and was bound to save millions more. It was the work of a genius who did not confine himself to medicine but was also a poet and mathematician. But the one thing he could not do was to make money. The British government had treated him shabbily in conferring no reward on him, as had been done on Jenner. Sir James Barr said that because of this refusal a fund had been raised by private subscription, which was still growing. Amid laughter he recalled how an American admirer of Ross's poetry had cabled to the prime minister asking him to appoint Ross poet laureate, when the appointment recently became vacant by the death of Bridges. An American physician, Dr. Robert Pitfield, said that by this time next year America would have contributed several thousands of pounds to the fund. Sir Ronald, who is 73, was looking remarkably well. The hymn of praise, written by him in India after his great discovery, was printed on the menu.

Physiologic Observations on the Kanchenjunga Expedition

The recent attempt to climb one of the highest mountains in the world, Kachenjunga (28,150 feet), resulted in certain observations of physiologic importance. Altitude was found to impair digestion, so that a careful choice of food had to be made. At heights over 20,000 feet, light sugary foods were found most suitable, such as jams, biscuits, chocolate, sugar, canned fish and fruit, and condensed milk. A little alcohol was found to be a great aid to digestion. Hot rum at bedtime was found the best drink to promote sleep. The general health of the expedition was cared for by Dr. Richter who attempted to combat the deleterious effects of altitude by bloodletting, as he considered that the relation of the normal blood pressure to the low pressure of the atmosphere was responsible for headache and mountain sickness. Only two members of the expedition submitted to having 200 cc of blood withdrawn. As they were both subsequently taken ill it was considered doubtful whether the experiment resulted in any good. More successful

was the daily administration of liver in the form of pills, to assist in the increased formation of hemoglobin, which takes place as part of acclimatization at high altitudes. Though oxygen should be carried on such expeditions for medical purposes, its use to assist climbing at high altitudes was not a success. It stimulated the body for a short time but the subsequent reaction was severe. The weight of the apparatus prohibited prolonged use and by tiring the climber neutralized the good effects. The secret of high climbing was found to be slow acclimatization, which was best effected by living as comfortable as possible at a height of 20,000 feet. Here appetite is unimpaired and sound sleep is possible.

The Origin of the Alphabet

In the Section of Anthropology of the British Association, Sir Richard Paget, who is well known for his studies of the positions of the lips, tongue and mouth in producing sounds and for the production of working models which reproduce these sounds, developed further the old theory that the development of alphabets has been influenced by sympathy between the human mouth and tongue and the human hand. As long ago as 1667, von Helmont put forward this theory with respect to the Hebrew alphabet. In 1902 Mr. Rudyard Kipling, probably independently, suggested mouth-shaped origins for the letters a, o, u, m and g. Sir Richard Paget pointed out that the alphabet was generally supposed to have been derived by simplification of preexisting pictographs, by adopting the picture of some word beginning with a given vowel or consonant as the alphabetic sign for that vowel or consonant. Thus the alpha of the Greeks was derived from the Egyptian sign called "alf," which represented the head of an ox with his horns. But the difficulty arises that there were in Egyptian at least fifty hieroglyphs for words beginning with the letter a. Sir Richard Paget suggested that the early scribes, in their search for suitable symbols, were unconsciously affected by a sympathy of movement between their tongues and mouths and their hands; they therefore selected those pictographs in the drawing of which the hand followed a direction which most closely followed the track of the tongue and lips in uttering the sound in question. He found evidence of this sympathy even in the Sumerian cuneiform writing. He gave examples from our own alphabet of the shape of letters representing the position of the mouth and lips in forming the sound.

Herbert William Carson

The death at the age of 59 of Mr. H. W. Carson removes a surgeon who was well known to Americans because of his work in postgraduate teaching. He was one of the organizers of the London meeting of the Interstate Medical Association and in 1929 he delivered the Mütter lecture to the College of Physicians of Philadelphia, in which he dealt exhaustively with intestinal obstruction from the historical, clinical and operative standpoints. Educated at St. Bartholomew's Hospital, he was appointed assistant surgeon to the Prince of Wales's Hospital, Tottenham (in north London) where he combined ear, nose and throat with general surgery. He was active in the organizing and subsequent working of the North East London Post-Graduate College, which was formed in connection with his hospital, and later in the work of the fellowship of medicine. He was especially concerned with the overseas part of the work of the fellowship and visited Canada in order to inform himself of the needs of physicians there. He became chairman of the executive committee of the fellowship and was appointed to the provisional organization committee of the new British Postgraduate Hospital. He was best known as an abdominal surgeon and edited and largely contributed to "Modern Operative Surgery," published in 1924. He edited also the tenth edition of Pye's "Surgical Handicraft." He was an indefatigable worker and lucid teacher.

PARIS

(From Our Regular Correspondent)

Sept. 10, 1930.

Titrable Forms of the Bacilli Typhosus and Paratyphosus

Studies on the filtrable forms of various micro-organisms are overthrowing many conceptions of hygiene that were regarded as definitely established, so that the whole epidemiology of many infectious diseases has to be restudied. Typhoid and paratyphoid bacilli normally do not pass through porcelain filters. Under the influence of the bacteriophage, they take on a filtrable form and later, when introduced into the organism, they again assume their bacillary form. Mr. P. Haudroy found these invisible forms in the stools and in the blood of typhoid patients, and in polluted waters. These invisible forms in polluted waters transmit typhoid and paratyphoid fevers, and the absence of bacilli in such waters will give henceforth no sense of security. The same conclusion applies to germ carriers, for they may remain for a long time infectious, though they present no visible bacilli, provided they still harbor invisible and filtrable forms. It is even probable that there are typhoid septicemias without bacillary forms in the blood.

Tuberculous Ultravirus in Blood of Patient with Tuberculids

In 1929, P. Ravaut, Valtis and F. van Deinse demonstrated the presence of tuberculous ultravirus in the lesions of papulonecrotic tuberculids and in a case of subcutaneous sarcoids. Pursuing their researches further, they have now discovered that the blood of a patient affected with papulonecrotic tuberculids, inoculated in the guinea-pig at two different times, with an interval of eight months, provokes lesions similar to those produced by the inoculation of tuberculous ultravirus. Four successive reinoculations, from animal to animal, showed in each case the presence of tubercle bacilli in the glands. This fact tends to prove that papulonecrotic tuberculids are the result of a septicemia caused by the tuberculous ultravirus. The authors conclude that these facts are evidence of the different evolution of the various types of tuberculosis of the skin, tuberculids being due to tuberculous ultravirus and lupus to the bacillary form of the Koch bacillus.

Contradictory Results from Suprarenalectomy

In a case of thrombo-angiitis obliterans, Professor Leriche of Strasbourg removed a suprarenal capsule. The result was immediate; the pains that had become intolerable ceased at once and an incurable ulceration of the great toe scarred over rapidly. During the five years elapsing since the operation, there has been no recurrence and the patient is in perfect health. There is, however, a slight claudication of the leg after the patient has walked a kilometer. Mr. Monnier-Vinard decided to apply the same operation to a subject affected with permanent arterial hypertension, in whom all forms of treatment had failed. There was only a transient and insignificant lowering of tension. The permanent result was nil. Radiotherapy of the vertebral column was also ineffective. These trials prove at least that man can live perfectly well with a single suprarenal capsule.

Trypanosomiasis in Africa

The unsatisfactory results secured in French Equatorial Africa, which is gravely infected by trypanosomiasis, are due in part to the scarcity of native workmen and in part, according to Mr. G. Muraz, to the insufficient number of physicians. A complete reorganization of the medical service has been decided on by the governor of the colony. The new trypanosomiasis service in French Equatorial Africa will comprise twenty-eight prophylaxis sectors, with twenty-one physicians, twelve assistant

hygienists, nine European agents and 152 native male nurses. It will thus become possible to reach most of the persons affected with trypanosomiasis and to treat them either with atoxyl or with tryparsamide. Arsenoresistant patients must be recognized. In a limited region about Mayumbe, this arsenoresistance is extending to an ever widening area. Mr. A. Sicé publishes a number of observations with graphs showing that lumbar puncture is indispensable in trypanosomiasis patients in order to make a definite diagnosis, establish the diagnosis, and control the treatment. According to Mr. Lui, a physician who has made a special study of trypanosomiasis cannot get away from the idea of multiple indications for lumbar puncture. He has performed more than 10,000 rachicenteses in trypanosomiasis patients, this control being applied every three months the first year, every six months the second year, and then once a year. The number of leukocytes per cubic millimeter sometimes exceeds 2,000, and the albumin content may range around 2 Gm. per thousand.

First Aid at Children's Playgrounds

The public squares of Paris that serve as playgrounds for children are often the scene of slight accidents that occur during their games. A proper hygienic treatment of even small lesions serves as an excellent practical lesson for the child himself. As the nearest pharmacy may be some distance away, one often sees, in such cases, playground assistants, with the best of intentions, endeavor to cleanse the wound with a soiled handkerchief impregnated with their saliva, and cases of syphilis have been known to be transmitted in such manner. At a recent meeting of the municipal council of Paris, Mr. Georges Prade, a member of that body, requested the prefect to issue an order that the *kiosques*, which are found at all the playgrounds and at which toys and cakes are sold, shall have for sale, at a reasonable price, such articles as are likely to be needed for first-aid treatment: dressings, gauze, surgical cotton, bandages, tincture of iodine. The prefect made some objections to the request, pointing out that it is to be feared that the pharmacists' syndicate will defend the privilege of its members, who have the sole right to sell to the public all internal and external remedies.

BELGIUM

(From Our Regular Correspondent)

Sept. 13, 1930.

Proposed Ethical Order of Physicians

A bill filed, April 23, 1929, with the bureau of the senate, contemplated the creation of distinct councils for the physicians, the dentists, the pharmacists and the veterinarians. The bill was discussed in THE JOURNAL, Aug. 24, 1929, p. 627. Mr. Baels, minister of the interior and of health, has filed an amended bill changing completely the first proposal and a new bill providing for the creation of an ethical order of physicians. The amended bill no longer mentions the creation of councils of physicians but provides merely for the establishment in each province of a council of pharmacists, a council of dentists and a council of veterinarians. The new bill providing for the creation of an ethical order of physicians is accompanied by a brief statement of the motives:

> The creation of an ethical order of physicians is more closely in harmony with the aspirations of the medical profession than the medical councils would be. Moreover, the new institutions such as are provided for by the new bill will stimulate, more than the medical and allied professional councils could have done, esprit de corps, fraternal spirit and discipline. This result will be still further strengthened by the creation of the superior council of the ethical order.

The principal sections of the proposed bill are as follows:

Section 1. There is hereby created, in each province, an [ethical] order of physicians, which partakes of a civil character and which will have its seat in the chief town of the province.

Section 2. The [ethical] order of physicians will consist of all doctors of medicine, surgery and obstetrics enrolled in the register of physicians. All persons domiciled in the province and authorized to practice medicine are enrolled in the register. The register of physicians is compiled annually under date of January 1 and is published before February 1.

Section 3. No one can practice medicine unless he is a member of the [ethical] order of the province in which he is domiciled.

Section 4. The physicians enrolled in the register elect by secret ballot a council of the order, which shall comprise at least five and not more than nine members and an equal number of alternates.

Section 7. The presidents of the nine councils of the order constitute the superior council of the order of physicians of Belgium. The seat of the superior council will be at Brussels. The council will elect from its own membership a president and a vice president, and it will choose a secretary.

Sections 8 and 9 establish the jurisdiction of the provincial councils and of the superior council of the order. They have jurisdiction over all infractions of medical ethics and of matters having to do with charlatans, but exclusive of questions pertaining to fees and to pecuniary interests.

Section 10. The penalties that the council of the order may impose are warning, censure and reprimand. Only the superior council of the order can suspend the right of a physician to practice medicine and that for a term not to exceed one year; only the superior council can cancel permanently a physician's license to practice, and remove his name from the register of physicians.

Section 11. The penalties cited in section 10 can be imposed only after the accused has been given a hearing or has been summoned at least twice, with an interval of fifteen days. The practitioner may use fifteen days to prepare his defense and he shall have the right to employ counsel.

Section 13. Any decision imposing a disciplinary penalty may be appealed within eight days of the date pronounced or of the signing of the decision if rendered by default.

An appeal from the decisions imposing a warning or censure is heard by the council of the order; an appeal from a decision imposing a reprimand is brought before the superior council of the order; in an appeal from a decision imposing suspension or exclusion from the medical register, the court of appeals having jurisdiction will hear the case.

Section 21. The first elections for the creation of the council of the order will be from the list of persons authorized to practice medicine in a given province and published in execution of the royal decree of May 31, 1880, reorganizing the medical commissions of the provinces.

The council of the order will prepare the register of physicians within a month after the election or after the ratification in case the election is contested.

The remaining provisions of the bill regulate various secondary formalities and leave to a royal decree the care of regulating diverse questions of practical application.

Tuberculosis of the Digestive Tract

At a meeting in connection with the Journées médicales de Bruxelles, by the Sociétés belge et française de gastro-entérologie, Dr. Brohee discussed symptomatology, diagnosis and treatment of tuberculosis of the digestive tract. Tuberculosis of the digestive tract is usually subjected to a purely medical treatment, which is frequently ineffective. Patients are, as a rule, referred at a late stage to the surgeon by reason of such complications as tumor, stenosis, perforation, occlusion, diarrhea, peritonitis or fistula.

Tuberculosis of the digestive tract is most frequently secondary to pulmonary tuberculosis. It is often grafted on parasitic lesions and coincides sometimes with a neoplastic formation.

Phthisiologists should have their attention called to: (1) the frequency of complicating lesions of the digestive tract during the evolution of pulmonary tuberculosis; (2) the possibility of an early diagnosis, and (3) their amenability to rational surgical intervention, applied as soon as possible after the beginning of the specific local lesion.

Tuberculosis of the stomach, duodenum, liver, bladder and pancreas do not have any specific symptomatology. Certain hypothetic signs have, however, been suggested. It is therefore impossible, until new research has been made, to make an early diagnosis of these conditions. Fortunately, the disorders with which they may be confused are in the nature of surgical disorders. Intestinal tuberculosis, on the contrary, has benefited greatly from clinical research. The symptoms of jejunal, ileocecal and colonic tuberculosis are better known. Increasing pains, appearing in recognized tuberculous patients, cause one to suspect specific intestinal lesions. Coprologic studies are not of much help, unless in a very late stage. In recent years, radiologic studies have made it possible to set up a series of direct and indirect symptoms that permit an early diagnosis. The medical treatment has nearly always proved ineffective from the curative point of view. Surgical treatment, which has many good results to its credit, should have its indications extended. Radical operations (exeresis) should replace, more and more, palliative operations. This result will not be attained without the aid of phthisiologists and the application of the principle of an early diagnosis.

Tuberculosis and Anthracosis

In the *Revue belge de la tuberculose*, Dr. Stassen gives an account of anthracosis. Clinicians and investigators present two widely different conceptions; some refer to the impregnation of the pulmonary tissues by coal dust whereby the lungs are said to be protected against tuberculous infection; while some speak of tuberculous infection generating a black pigmentation of the lungs, without the coal dust assuming necessarily any rôle whatever in the clinical picture. This disagreement, the author maintained, is due to the fact that sufficient research has not been devoted to the working conditions of patients in the mines. In the light of experience acquired in the mine, he seeks to present the problem in its true light.

The coal dust found in the sputum of miners with anthracosis is by no means identical with the fine carbon deposit produced by lamps that smoke, which many investigators have used in the production of pulmonary anthracosis. The former has component parts of very unequal size. Some of the particles are from 150 to 160 microns in diameter, and are consequently much larger than the largest cells of the organism that might envelop them. Some particles are amorphous; others have a structure similar to that found in the lower orders of plant life. Sometimes they are composed of iron or sulphur. The miners work generally under hygienic conditions that explain the large number of pulmonary disorders among them: absence of sunlight; deficient oxygen due to poor ventilation; confined air; toxic atmosphere; repeated chills produced by the drafty and relatively cold galleries. Pharyngitis, bronchitis and pneumonia occur, causing a diminution of their mechanical means of defense against the inhalation of coal dust. Following the course of defective bronchial trunks and branches, deprived of cilia, the coal dust is deposited and gradually accumulates. The masses formed in the pulmonary alveoli and the branches of the bronchi may remain quiescent or they may be points of attraction for microbic organisms. These may cause a virulent acute infection and death as a result of pulmonary edema, or they may give rise to a slowly developing infection that will produce bronchitis, pleuritis, areas of condensation or pulmonary cavities.

Nevertheless, tuberculosis is extremely rare in miners with anthracosis. In 1,204 miners having chronic respiratory disorders, examined since 1924 at the Dispensaire de l'espérance or at the Institut provincial de physiopathologie du travail, in Liége, the results were as follows:

	Number of Cases	Per Cent
Chronic bronchitis, with acute and repeated attacks	688	57.0
Bronchitis; tuberculosis suspected but not confirmed	31	2.5
Chronic bronchitis, emphysematous at the start	196	16.5
Chronic asthmatic bronchitis	99	8.5
Chronic emphysematous confirmed bronchitis	134	11.0
Cardiac disorders with pulmonary stasis	9	0.7
Pulmonary tuberculosis (bacilli in sputum)	13	1.0
Pulmonary sclerosis following absorption of dust	11	1.0
Pulmonary sclerosis resulting from intoxication by gases	7	0.5
Anthracosis (black sputum)	12	1.0
Bronchiectasis, pulmonary gangrene	4	0.3

Malignant Tumors in the Congo Natives

Contrary to the usual belief, there is no immunity to cancer among the black races. While malignant tumors are more rare, better organized medical research has revealed an increasing number of cases. Dr. Guillot (Belgian Congo) recalls the statistics published by Dr. Mouchet in 1926, which contain accounts of thirty-four malignant tumors found by physicians working among the natives of various regions of the Congo. Of these thirty-four tumors, one was a mixed tumor, twenty-one were epithelial and twelve were of the connective tissue. Six observations published by the author bear out this proportion of epithelial tumors with relation to tumors of the connective tissue, and confirm the conclusion of Dr. Mouchet that the black race, far from being refractory to cancer, presents all the forms of tumors encountered in the white race.

International Exposition of Dental Hygiene

The International Exposition of Dental Hygiene was organized in connection with the session at Brussels of the Fédération dentaire internationale. The purpose of the exposition was to show the methods of instruction with respect to dental hygiene and dental prophylaxis and to bring out the results secured in the countries in which these methods have been applied. The most important sections were those of Scandinavia, the Netherlands, Germany and England. The Scandinavian exhibit was remarkable. Prepared by an ardent advocate of dental hygiene, Dr. Brun of Oslo, it served as an exemplification of technical methods and publicity measures and brought out the great progress made in Scandinavian countries in combating the social evils growing out of dental disease.

Germany's exhibit consisted essentially of a traveling museum of dental anatomy and pathology, for the use of schools and centers for popular education. Wall maps showed the development of dental clinics and hygienic centers in Germany.

The Netherlands presented, in addition to a traveling museum similar to that of Germany, various publicity devices: posters, drawings, photographs and transparencies.

England sent representatives of the Dental Board of the United Kingdom, together with a complete traveling museum, publicity tracts and posters.

The University of Bonn sent an interesting series of wax molds, or casts, pertaining to the prophylaxis of the gums; also fixed prostheses and illustrative of methods of treating maxillary malformations.

France was represented by exhibits from the cities of Strasbourg and Saint-Etienne, and by the dental dispensary of the Ecole odontotechnique de Paris.

The Belgian exhibit was prepared under unfavorable circumstances. In matters of dental hygiene and prophylaxis, we are not abreast of other nations. Nevertheless, the organizers of the Belgian exhibit succeeded, after difficulties, in collecting some interesting material. The army medical service presented photographs of its hospital dental clinics. The Association générale des dentistes de Belgique displayed the activities of the dental school and dispensary.

JAPAN

(From Our Regular Correspondent)

Aug. 1, 1930.

A Method for Vaccination Against Smallpox

A new method for vaccination against smallpox, which will leave no trace on the skin, has been contrived by Dr. H. Yaoi, a bacteriologist in the government institute for infectious diseases. In 1924 he began to study the cause of smallpox in cooperation with Mr. H. Kasai, a veterinary surgeon in the institute. The results of the vaccine injected in 500 cases have been excellent.

A Census of Infectious Disease

The second general census is to be taken, October 1, and the sanitary bureau of the home ministry has directed that, in case of infectious disease, data will be collected by the police. The main purpose of the census is to obtain statistics on unemployment and the causes of the deaths in each family.

Trachoma Among Immigrants

A conference was held in Tokyo to investigate the trachoma problem of immigrants, especially those from Brazil. The committee consisted of the authorities from the four departments of the cabinet: the interior, foreign affairs, plantation and communication. It was decided to deliver a citation to the local governments to the effect that the health officers there should make more careful physical examination of the immigrants and that passports should not be issued without strict examination.

Children Born in the Year of the Earthquake

It is worthy of noticing from a medical point of view the results of the physical examination of the children born in Tokyo in the year of the great earthquake in 1923. The Tokyo authorities undertook to investigate the influence, mental and physical, caused by the disaster on the poor children. For this purpose 30,474 children were examined; 0.59 per cent are poorly developed mentally, and 0.28 per cent physically; 14,981 of the children, or 49.16 per cent, are diseased, 640 of whom have swollen cervical glands, 2,026 carious teeth. Generally speaking, the number of children weak mentally and physically is larger, though not considerably larger, than that of the years before.

Meetings

Dr. S. Horiguchi, captain surgeon, will be sent as delegate to the thirty-eighth general meeting of the Army Military Surgeons Association of the United States, which will be held in Washington, September 25.

Dr. Majima, member of the Tokyo Municipal Assembly, has been sent as a Japanese delegate to the international birth control union meeting, which will be held at Zurich, September 1. He left Yokohama, July 31, on the *Empress of Russia.*

The Most Disastrous Diseases

Mr. Y. Nakagawa, of the social bureau in the home department, stated in a lecture before the Research Society for Industrial Health that tuberculosis, venereal diseases and trachoma are the three most disastrous diseases in our country. They are especially of great consequence to workmen and laborers in the factories and mines. Though the regulations for the prevention of tuberculosis and trachoma were published by the government years ago and the antivenereal disease regulations were put in force three years ago, many workers and miners are still suffering from these diseases, which claim many victims year after year. According to figures published by the statistics bureau, 44,033 factories and workshops and 1,144,716 workers were protected by government health insurance in April, 1927, and 40 per cent of them were male. This year 3,321,234 insured have been treated by insurance physicians; 18,624 were inpatients. Tuberculosis cases numbered 628, which is 3.66 per cent of the insured inpatients and 60.35 per cent of the three national disease cases. Venereal disease cases numbered 270, which is 1.45 per cent of the insured inpatients and 23.90 per cent of the three national disease cases. Trachoma cases numbered 178, which is 0.96 per cent of the insured inpatients and 15.75 per cent of the three national disease cases.

Dr. Arima to Lecture Abroad

Dr. Arima, chief of the Arima Sanatorium in Osaka, has been invited to lecture before the Natural Science Society and the general medical meeting at Königsberg University, September 6 to 11. His subject will be "Special Treatment for Tuberculosis and My Investigation." He will also lecture in Moscow on his way to Germany, and after the meeting will make a two months' trip in Europe.

BERLIN

(From Our Regular Correspondent)

Sept. 15, 1930.

Progress of the Lübeck Investigation

Following the declaration of July 8, the federal ministry of the interior, under date of September 10, has published the following statement with regard to the progress that is being made in the investigation of the causes and conditions that led to the death from tuberculosis of more than sixty infants, in Lübeck, who had been inoculated with the B C G vaccine against tuberculosis:

The scientific investigations that have been carried on in the bureau of the federal health service, by Prof. Dr. Ludwig Lange, have produced these results:

1. The epidemiologic course of the cases of morbidity and the fatal cases shows marked periodic fluctuations, which bring out the fact that the vaccine materials that were prepared and administered at different times had a varying pathologic action. In contrast with certain periods with comparatively high morbidity and high mortality, there are others with a slight morbidity and with an absence of mortality, up to the present time.

2. The culture which was sent to Lübeck by the Pasteur Institute, which was cultivated further, after its arrival, on fluid mediums, and which was not used for the preparation of vaccine materials, has been found, on investigation, to be a pure B C G strain, without virulence for guinea-pigs.

3. Of the remaining B C G cultures from Lübeck, which were available for the government investigation, the oldest cultures (prepared in Lübeck, the middle of March, 1930) belonged to an inoculation period in which only a comparatively small percentage of the children were taken ill and none died from tuberculosis. The younger cultures, grown in the second half of April, 1930, had not been used for the preparation of vaccine materials. They were, however, included in the investigation. From the results of animal experiments, all these cultures have been freed of any suspicion of having consisted mainly or entirely of virulent tubercle bacilli. It appears likely that they were pure B C G cultures. The investigations are not, however, sufficiently advanced to state positively whether or not they contained *occasional* virulent tubercle bacilli.

4. In addition to these culture tubes, some remnants of four culture emulsions (vaccine material) used in the inoculation of children were brought into the investigation, two of which belong with certainty to vaccination periods presenting high morbidity and high mortality figures. The investigation of these vaccine materials, which the bureau of the federal health service did not receive until later, is still under way.

5. For the investigation there was another culture available that was derived from a guinea-pig which Professor Deycke had inoculated, March 6, with a supposedly pure emulsion of his B C G culture that he had cultivated in Lübeck on solid culture mediums. This culture, which was started, April 17,

showed, on examination at the bureau of the federal health service, high virulence for guinea-pigs but slight virulence for rabbits. Its behavior corresponds, therefore, to that of a culture of human tubercle bacilli.

Another guinea-pig, which was inoculated by Deycke, in Lübeck, April 17, with a different B C G emulsion, likewise supposed to be pure, had been brought alive to Berlin and, on being killed 109 days later, was found to be highly tuberculous. Researches on the exact behavior of this culture are still being carried on.

6. The portions of organs, which were taken at necropsy from the infants who had died from progressive tuberculosis and inoculated into guinea-pigs, produced in these animals progressive tuberculosis. Likewise, the cultures grown directly from such portions of organs show, according to the results of previous researches, high virulence for guinea-pigs but slight virulence for rabbits. The behavior of these cultures corresponds thus to that of a culture of human tubercle bacilli.

7. From the results of recent researches it is evident that the B C G culture furnished from Paris was unobjectionable in every respect and was not virulent.

To discover how the pathogenic and fatal action of so large a portion of the vaccine materials injected into the infants in Lübeck was brought about, researches are still in progress. The investigators are seeking to determine whether, through error or through the use of certain culture mediums, a contamination of the B C G culture with virulent tubercle bacilli occurred, or, on the other hand, whether or not a biologic metamorphosis may be suspected. In order to reach, as far as it is humanly possible, an unequivocal judgment in these matters, further comprehensive scientific researches must be carried out. The task proposed has been made more difficult, and its execution has been delayed, by the fact that the vaccine materials used in Lübeck for the inoculation of infants have been shown to be of a varying quality, for which reason they possessed a variable pathogenic action. This circumstance has made necessary a more comprehensive series of researches.

Health Services of Life Insurance Companies

For a number of years, many German life insurance companies have conducted a health department for the benefit of their policyholders. Persons insured for certain amounts have been granted, at certain intervals, special examinations and have been given medical advice as to the care of their health. This service has recently been extended by one large insurance organization. Persons who, for the preservation or lengthening of their life, are obliged to undergo a surgical operation are, on request, granted a special sum, without interest, to aid them in paying the costs of the operation. This aid, which takes the form of a non-interest-bearing prepayment of a portion of the sum for which the person is insured, is considerably higher than the regular loan value of the policy, for which interest is charged if a loan is made.

Rights of Physicians in the Choice of a Residence

Differences and misunderstandings constantly arise owing to the fact that one physician endeavors to take an apartment in a building in which another colleague resides. Consequently, the executive committee of the Gross-Berliner Aerztebund has published the following decision:

A physician may not be allowed to take up his residence in an apartment building in which another physician having the same specialty already resides, without first securing the consent of that physician. On the other hand, it is not permissible that a physician shall enter into a contract with a house-owner, whereby the house-owner agrees to rent to no other physician a dwelling, for the practice of medicine, which is located within the same block. However, if an agreement of such a nature is made in which the area involved is that of an ordinary Berlin apartment building, even though it is, in a way, subdivided, or, for given reasons, actually forms two houses, it shall not be called into question.

Marriages

CHARLES LEE QUAINTANCE, Queens Village, N. Y., to Miss Elizabeth Mary Coffey of New York, in August.

WILLIAM H. SCHOWENGERDT, Champaign, Ill., to Miss Minnie Berg of Bisbee, N. D., August 26.

WILLIAM ROBERT WHITEFORD, Lieut., U. S. Navy, to Miss Mary Belle Harrison, August 27.

BEN HAMILTON NICHOLSON, Nashville, Tenn., to Miss Winifred Tucker, September 2.

KIRBY A. MARTIN, New York, to Miss Edna Peters, August 30.

Deaths

Emory Graham Alexander ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1904; member of the American Surgical Association and the American College of Surgeons; assistant professor of surgery, University of Pennsylvania School of Medicine; served during the World War; on the staffs of the University, Abington (Pa.) Memorial and the Episcopal hospitals; aged 50; died, August 29, when he severed his jugular vein with a pocket knife.

Asa Barnes Davis ✠ New York; Medical Department of Columbia College, New York, 1889; member of the American College of Surgeons; member and past president of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons; since 1918 chief surgeon of the Lying-In Hospital; aged 69; died, August 13, in St. Luke's Hospital, of angina pectoris.

Charles Moir ✠ Louisville, Ky.; University of Louisville School of Medicine, 1898; at one time professor of pediatrics, Kentucky School of Medicine; formerly on the staffs of the Louisville City Hospital, St. Anthony's Hospital and the Kentucky School of Medicine Hospital; aged 66; died, July 8, in Lakeland, of endocarditis.

Oscar R. Tomlinson ✠ Tate Springs, Tenn.; Tennessee Medical College, Knoxville, 1892; Bellevue Hospital Medical College, New York, 1894; past president of the Hamblen County Medical Society; aged 60; died, August 27, in a hospital at Fort Sanders, of complications, following an operation for appendicitis.

Joseph Tait Smith, Princeton, N. J.; University of Maryland School of Medicine, Baltimore, 1872; member of the Medical and Chirurgical Faculty of Medicine; formerly associate professor of hygiene and clinical medicine at his alma mater; aged 80; died, in May, in Cleveland, of carcinoma of the prostate.

Effie Alberta Read, Washington, D. C.; George Washington University Medical School, Washington, 1912; assistant chief of the micro-analytical laboratory of the bureau of chemistry, department of agriculture; aged 57; died, September 1, of carcinoma of the ovary with general metastases.

John Howard Thompson, Mescalero, N. M.; Medical College of Ohio, Cincinnati, 1881; past president of the El Paso (Texas) County Medical Society; formerly member of the school board in El Paso, Texas; aged 79; died, May 14, in El Paso, Texas, of cardiac infarction.

Orlando L. Sutherland, La Porte, Ind.; University of Michigan Homeopathic Medical School, Ann Arbor, 1891; member of the Indiana State Medical Association; aged 70; died, August 10, in the Presbyterian Hospital, Chicago, of pneumonia, following an operation.

J. Arthur Mullins, Marlow, Okla.; University of Oklahoma School of Medicine, Oklahoma City, 1911; member of the Oklahoma State Medical Association; aged 50; was found dead, August 11, of burns received when the gasoline tank in his automobile exploded.

Louis Brinton Yerger, Wilmington, Del.; Hahnemann Medical College and Hospital of Philadelphia, 1914; member of the Medical Society of Delaware; aged 40; on the staff of the Homeopathic Hospital, where he died, in August, of carcinoma of the cecum.

Wade Hampton Brannon, Anniston, Ala.; Birmingham Medical College, 1910; member of the Medical Association of the State of Alabama; past president of the Calhoun County Medical Society; on the staff of the Grover Hospital; aged 43; died, August 17.

Hiram Byrd ✠ Detroit; University of Georgia Medical Department, Augusta, 1902; director of the department of hygiene, University of Mississippi, 1919-1920, and at the University of Alabama, 1920-1922; aged 55; died, July 20, of angina pectoris.

Claude L. Rawlings ✠ New Harmony, Ind.; Washington University School of Medicine, St. Louis, 1903; secretary and past president of the Posey County Medical Society; aged 50; died, August 27, in the Walker Hospital, Evansville, of acute pyelonephritis.

Jeremiah Francis Brennan, Boston; Tufts College Medical School, Boston, 1923; member of the Massachusetts Medical Society; on the staff of St. Elizabeth's Hospital, where he died, August 27, aged 37, of bronchopneumonia and cardiorenal disease.

Harold J. Chapman ✠ Speed, Kan.; Wisconsin Eclectic Medical School, Milwaukee, 1896; aged 62; died, June 30, in the Presbyterian Hospital, Chicago, of peritonitis, following operation for obstruction of the duodenum and gallstones.

Roy Logan Stackpole, Pittsburgh; Western Reserve University School of Medicine, Cleveland, 1901; past president of the Butler (Pa.) County Medical Society; aged 53; died, August 21, of lung abscess and mediastinal tumor.

William Franklin Matson, Denver; State University of Iowa College of Medicine, Iowa City, 1896; member of the Colorado State Medical Society; aged 66; died, August 11, in Victoria, B. C., Canada, of heart disease.

J. Ensor Hutcheson ✠ Rockville Center, N. Y.; Bellevue Hospital Medical College, New York, 1890; past president of the Medical Society of the County of Nassau; aged 61; died, August 16, of chronic endocarditis.

Alexander Aisman ✠ Brooklyn; University and Bellevue Hospital Medical College, New York, 1912; on the staff of the Jewish Hospital; aged 39; died, August 16, of chronic nephritis and myocarditis.

Benjamin Franklin Pearce, Lancaster, Pa.; Medical College of Virginia, Richmond, 1929; intern, St. Joseph's Hospital; aged 30; hanged himself, August 12, in the State Hospital, Raleigh, N. C.

John Atkinson Hunnicutt, Athens, Ga.; Atlanta Medical College, 1866; Civil War veteran; formerly mayor, president of the bank, and member of the school board; aged 92; died, August 10.

William Cheney Watts, Drew, Miss.; University of the South Medical Department, Sewanee, Tenn., 1896; aged 55; died, July 27, in Greenwood, of splenomegaly following undulant fever.

Herman S. Spear, North Anson, Maine; Dartmouth Medical School, Hanover, N. H., 1897; member of the Maine Medical Association; aged 61; died, May 22, of coronary occlusion.

Washington Irving Goewey, Albany, N. Y.; Albany Medical College, 1892; aged 72; died, July 31, in the Glens Falls (N. Y.) Hospital, of injuries received in an automobile accident.

Edward C. Ayres, Lorimor, Iowa; State University of Iowa College of Medicine, 1894; past president of the Union County Medical Society; aged 64; died, July 13, of angina pectoris.

Martin L. Oilar, Russiaville, Ind.; Medical College of Ohio, Cincinnati, 1875; aged 78; died, August 21, in the Johns Hopkins Hospital, Baltimore, of hemorrhage due to gastric ulcer.

William N. Wardlaw, Childress, Texas; Fort Worth School of Medicine, 1895; member of the State Medical Association of Texas; aged 60; died, May 27, of acute nephritis.

Charles M. Long, Osakis, Minn.; Rush Medical College, Chicago, 1878; aged 81; died, August 3, in a hospital at Alexandria, of carcinoma of the cecum and intestinal obstruction.

James C. Welch, Salem, Mo.; Medical College of Ohio, Cincinnati, 1889; member of the Missouri State Medical Association; aged 69; died, May 30, of cerebral hemorrhage.

Walter Arthur Monnich, Minneapolis; Baltimore Medical College, 1910; served during the World War; aged 46; died, August 28, in Prescott, Ariz., of pulmonary tuberculosis.

Guilford Sims Wright, Cowan, Tenn.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; aged 56; died, August 12, in Sewanee, of carcinoma of the lung.

Newton Bolivar Haney, Fort Worth, Texas; Vanderbilt University School of Medicine, Nashville, Tenn., 1882; aged 76; died, July 24, of myocarditis and arteriosclerosis.

Eduard Sylvester Smith, Jr. ✠ New York; University of Vermont College of Medicine, Burlington, 1916; served during the World War; aged 40; died, July 6.

Frederick Raymond Devine ✠ Riverside, R. I.; University of Maryland School of Medicine, Baltimore, 1913; aged 38; died suddenly, August 15, of heart disease.

Joseph Eloi Fontaine, Hull, Que., Canada; School of Medicine and Surgery of Montreal, 1891; formerly mayor of Hull; aged 64; died, June 11, of myocarditis.

John A. Weamer ✠ Tarentum, Pa.; Baltimore Medical College, 1896; on the staff of the Allegheny Valley Hospital; aged 61; died, August 31, of lung abscess.

Joseph Edward Quinn, New York; Fordham University School of Medicine, New York, 1921; surgeon, U. S. Public Health Service; aged 32; died, July 25.

James McMahon, Texarkana, Ark.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1873; aged 86; died, August 3, of cerebral hemorrhage.

George Ernest Webber ✠ Morland, Kan.; Medico-Chirurgical College of Kansas City, 1904; aged 57; was killed, August 12, when his car hit a culvert.

David Michael Flannery, Brooklyn; Medical Department of the University of the City of New York, 1880; aged 81; died, August 20, of arteriosclerosis.

Lucius B. Bates, St. Matthews, S. C.; University of South Carolina Medical Department, Columbia, 1868; Confederate veteran; aged 83; died, August 14.

Le Roy Dibble, Kansas City, Mo.; Bellevue Hospital Medical College, New York, 1871; Civil War veteran; aged 86; died, August 6, of nephritis.

William Merrill Hutchinson, Pompton Plains, N. J.; Long Island College Hospital, Brooklyn, 1881; aged 70; died, June 8, of chronic myocarditis.

Joseph Davis Todd, Adrian, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1869; Civil War veteran; aged 86; died, May 24, of senility.

Eugene Lee McCurdy, Stone Mountain, Ga.; Emory University School of Medicine, Atlanta, 1924; aged 31; died, July 27, of pulmonary tuberculosis.

Samuel M. Stedman, Versailles, Ky.; University of Louisville School of Medicine, 1891; aged 62; died, August 7, in the Woodford Memorial Hospital.

Elijah Sylvanis Goff ✠ Spencer, W. Va.; Kentucky University Medical Department, Louisville, 1905; aged 49; died, August 3, of chronic nephritis.

James W. Dinsmore, Nebo, Ill.; St. Louis College of Physicians and Surgeons, 1896; aged 60; died, July 24, in the Barnes Hospital, St. Louis.

James Phillip Lunt, Rector, Ark.; Barnes Medical College, St. Louis, 1906; member of the Arkansas Medical Society; aged 53; died, August 14.

Henry H. Irwin, Woodstock, Va.; College of Physicians and Surgeons, Baltimore, 1885; aged 67; died, July 23, of cerebral softening.

James M. Arnold, Lexington, Tenn.; Vanderbilt University School of Medicine, Nashville, 1890; aged 80; died, July 30, of lobar pneumonia.

Squire Morgan Henry ✠ Lockney, Texas; College of Physicians and Surgeons, Dallas, 1908; aged 67; died, July 4, in Los Angeles.

James Monroe Venters, Portland, Tenn.; Hospital College of Medicine, Louisville, 1904; aged 57; died, August 18, of heart disease.

Salton McGibbon, Edmonton, Alta., Canada; McGill University Faculty of Medicine, Montreal, Que., 1902; aged 52; died, August 8.

Francis S. Comfort, St. Catharines, Ont., Canada; University of Buffalo (N. Y.) School of Medicine, 1885; died, July 24.

Charles Douglas Wright, Springfield, Ill.; Rush Medical College, Chicago, 1880; aged 73; died, August 26, of heart disease.

Charles Frederick Disen ✠ Minneapolis; Rush Medical College, Chicago, 1886; aged 69; died, August 6, of paralysis agitans.

Newton Bruce Marsh, Falkner, Miss. (licensed, Mississippi, 1882); aged 69; died, August 26, of heart disease.

John Calvin Smith ✠ Catoosa, Okla.; Baltimore Medical College, 1902; aged 54; died, July 20.

Bureau of Investigation

THE STROOPAL FRAUD

Another "Cancer Cure" Denied the Use of the Mails

For many years a nostrum known as Stroopal has been sold on both sides of the Atlantic as a cure for cancer. The stuff apparently originated in Germany. For some years it was exploited from London, and the fraud was exposed by London *Truth* nearly twenty years ago. In the "Cautionary List" which that militant weekly issued annually at that time, the following brief paragraph appeared:

> "STROOPAL.—A cancer-cure purveyed by a Mr. W. Faupel, of Windsor-lodge, Hartfield-road, Wimbledon. The cure is made in Germany by a 'Professor' Stroop and consists of three powders to be taken at monthly intervals when the moon is new. Its advertisement has been stopped in Germany under the law which forbids the advertisement of secret remedies."

According to Gehe's Codex (January, 1913, page 99) Stroopal is composed of the powdered leaves of *Teucrium Scordium*, otherwise known as water germander or wood garlic.

For at least seventeen years, and probably longer, Stroopal has been exploited in a small way from Chicago. At first it seems to have been sold by a rather crude concern known variously as the "Institute of Regeneration" and "Institute of Reform," which operated from various addresses in Chicago. This concern, which seems to have been operated by one E. P. Handl, addressed itself especially to the German-American element, a large part of the advertising matter being printed in German script. Part of the "come-on" literature consisted in photographic reproductions of so-called Diplomas of Merit from European expositions, each showing that such a "Diploma" was issued to Mr. A. Stroop, the originator of Stroopal. In addition, there were reproduced photographically the official trade-mark specifications issued to Ernst Handl from the United States Patent Office for certain nostrums.

More recently Stroopal seems to have been advertised under the name of the Stroopal Company, 2101 Belmont Avenue, Chicago. This is the address of a small butcher shop.

The postal authorities on August 13, issued a fraud order against the Stroopal Company and notified the Chicago postmaster to return all letters addressed to the Stroopal Company to the original senders, after having stamped on the letters "Fraudulent."

The memorandum of the Solicitor of the Post Office Department to the Postmaster-General, recommending the issuance of a fraud order, states that after the postal authorities had notified the Stroopal Company at Chicago and its agents, one John Altbaumer at Centralia, Okla., and a Mrs. E. Boeding at Seneca, Kansas, to show cause why a fraud order should not be issued against them, no appearance was made either in person or by attorney on the date set for the hearing. A week later, according to the memorandum, John A. Nash, a Chicago attorney, appeared in Washington and presented informally a written answer denying the charges. Readers of this department of THE JOURNAL may remember that the reports that have been published of medical mail-order frauds have recorded the appearance, as attorney, of John A. Nash of Chicago in other cases: The "Lavex" "catarrh cure" fraud of Kansas City, Mo.; the aphrodisiac fraud of Jean Jacques Laboratories of Chicago; the "lost manhood" fraud of A. T. Hay of Chicago; the Burgess and Johnson frauds of Kansas City, Mo. The Solicitor's memorandum states in part:

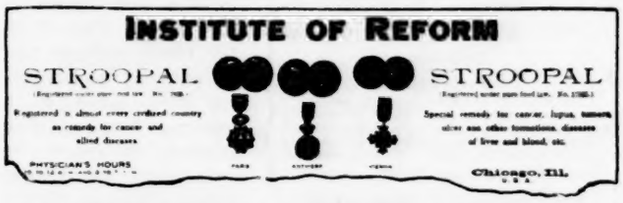
"The Stroopal Company is a trade name used by one Alphonse Faupel, John Altbaumer and Mrs. E. Boeding in the sale through the mails of a product called Stroopal. It is claimed by the promoters of this product that it was 'born' 150 years ago in the laboratories of a great physician of Northern Westphalia. This physician is alleged to have been a close friend of the Stroop family and to have given to its members the secret formula for his preparation, in return for performance of an 'unusual service.' The product is manufactured in Germany and is forwarded to Mr. Faupel at Chicago, where it is dispensed by him from a meat market operated by his brother. Mr. Altbaumer and Mrs. Boeding are agents.

"The evidence shows that Stroopal is sold through the mails upon representations to the effect that, when used as directed, it will cure cancer, tumors, goiter and all internal and external swellings, blood diseases, piles, boils, ulcers, lupus, eruptions, stomach, liver, kidney and gallstone ailments, mastitis, delayed and painful menstruation; that it restores the tissues; that it succeeds in seemingly hopeless cases when all else, even the surgeon's knife has failed, and that it is an effective preventive of disease."

Business was obtained by means of circulars and form-letters, as well as advertising leaflets and other material. The memorandum then continues:

"The evidence shows that Stroopal is composed of the powdered leaves of *Teucrium Scordium*, otherwise known as water germander or wood garlic. A so-called full course of Stroopal consists of three 'principal' powders to be taken one a month. In addition, 'intermediate' powders to be taken one a week by persons on whom the disease or condition involved has gained a 'strong hold' are also purveyed. The literature directs that the 'principal powders' be taken at 'new moon' and the supplemental or 'intermediate powders' at 'full moon.' According to these directions, 'urgent' cases permit taking of 'intermediate' powders on 'any other days' but 'best always at the first and last quarter-face of the moon.' The price of the so-called full course is $6. Intermediate powders are sold at $1 each, but their sale is limited to purchasers of the full course."

The Solicitor in his memorandum to the Postmaster General stated that, according to scientific medicine, the crude drug of which Stroopal is composed, while once popularly used for cancer and other serious diseases, is now entirely obsolete, except as a means of discouraging moths. He pointed out, further, that the use of Stroopal in cases of cancer was worse than worthless, because of the delay in instituting scientific treatment of the condition.



The Solicitor also calls attention to the fact that some of the advertising matter for Stroopal purported to reproduce pictures of medals and other declarations said to have been awarded at exhibitions held in various European cities, including Antwerp, Belgium, and Paris. The Solicitor states that investigation by representatives of the United States government in these European cities shows that no exhibitions of the character mentioned were ever held in these places. In this connection, it is worth reminding our readers that this department of THE JOURNAL, some years ago (March 4, 1914), published an article describing some of these fake Grand Prix, diplomas and gold medals and how they were obtained. This matter is reprinted in the pamphlet, "Some Quasi-Medical Institutions," prepared and issued by the Bureau of Investigation.

The memorandum then closes with these paragraphs:

"The history of Stroopal in America has been turbulent. Barred from entry as dangerous to the health of the people of the United States, it was for a time smuggled into the country as 'metal cleaning powder.' Its American vendors have, moreover, on at least one occasion, been driven from business by local authorities and a number of spurious medals and diplomas confiscated. Approximately 40 pieces of mail are being received daily at Chicago, Ill., addressed to the Stroopal Company.

"John Altbaumer at Centralia, Okla., and Mrs. E. Boeding at Seneca, Kansas, have been permitted to abandon this scheme by filing affidavits to that effect in this office, thus obviating the necessity of the issuance, at this time, of a fraud order against their personal names.

"The evidence shows that this is a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises, and I so find.

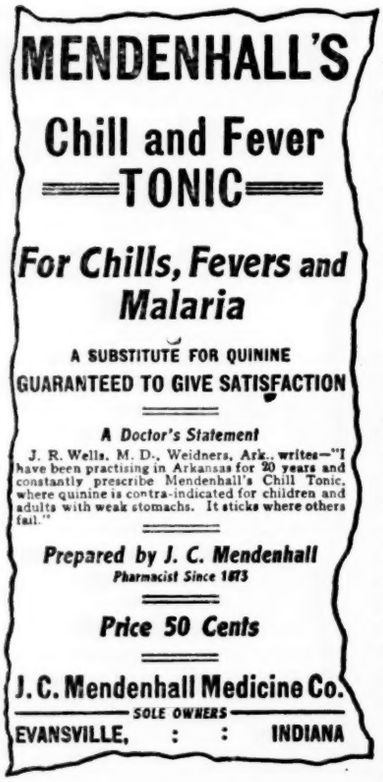
"I, therefore, recommend that a fraud order be issued against the Stroopal Company and its officers and agents as such, at Chicago, Ill."

MORE MISBRANDED NOSTRUMS

Abstracts of Notices of Judgment Issued by the Food and Drug Administration of the United States Department of Agriculture

Schieffelin Cold and Grippe Tablets.—Schieffelin and Company, New York City, shipped in January, 1929, into New Jersey a quantity of Schieffelin's Cold and Grippe Tablets that were declared misbranded. The tablets were found on analysis to contain acetanilide, cinchona alkaloids, red pepper, camphor, aloin and extracts of plant drugs, including a laxative drug. The claim that it was a remedy for influenza was declared false and fraudulent and in July, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16583; issued February, 1930.*]

Mendenhall's Chill and Fever Tonic.—The J. C. Mendenhall Medicine Company, Evansville, Ind., shipped in January, 1929, to St. Louis, Mo., a quantity of Mendenhall's Chill and Fever Tonic that was declared adulterated and misbranded. Analysis showed the stuff to consist essentially of quinidine sulphate (6.32 grains to the fluid ounce), a laxative plant drug extractive, glycerine, alcohol, sugar, water and a trace of benzoate of soda. Adulteration was charged in that it was claimed on the trade package that it contained no dangerous drug when, as a matter of fact, each fluid ounce contained the equivalent of several grains of quinine; it was declared misbranded because the claims that it was a cure for influenza, general debility, loss of appetite, jaundice, biliousness, etc., were false and fraudulent. In June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16546; issued March, 1930.*]


MENDENHALL'S
Chill and Fever
TONIC
For Chills, Fevers and Malaria
A SUBSTITUTE FOR QUININE
GUARANTEED TO GIVE SATISFACTION
A Doctor's Statement
J. R. Wells, M. D., Weidners, Ark., writes—"I have been practising in Arkansas for 20 years and constantly prescribe Mendenhall's Chill Tonic, where quinine is contra-indicated for children and adults with weak stomachs. It sticks where others fail."
Prepared by J. C. Mendenhall
Pharmacist Since 1873
Price 50 Cents
J. C. Mendenhall Medicine Co.
SOLE OWNERS
EVANSVILLE, : : INDIANA

Goodwin's Cold Breakers.—The Senoret Chemical Company of St. Louis, Mo., shipped to Wheeling, W. Va., in December, 1928, a quantity of Goodwin's Cold Breakers that were declared misbranded. The tablets were found on analysis to contain acetanilide, aloin, strychnine and a laxative plant drug. The claim that it was a remedy for influenza was declared false and fraudulent. In May, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16590; issued February, 1930.*]

Sternox.—The Sterno Corporation, New York City, shipped to Connecticut in January, 1929, a quantity of Sternox which was declared misbranded. The federal chemists reported that Sternox was essentially petrolatum with small amounts of camphor, menthol, turpentine, thyme and eucalyptus oils. The claim that it was a remedy for coughs, influenza, croup, etc., was declared false and fraudulent and in June, 1929, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment 16550; issued March, 1930.*]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted on request.

"THE THIN CHILD AND CALCIUM"

To the Editor:—The article in *Good Housekeeping Magazine* for June, 1930, "The Thin Child and Calcium," by Dr. Josephine H. Kenyon, has caused not a few of my patients to call up with reference to the treatment. May I be advised if sufficient scientific investigation has been done to carry out the treatment as outlined without control laboratory blood calcium findings. This type of child, usually the only child of a neuropathic parent, constitutes about 30 per cent of my office practice, but I hesitate to employ such treatment as outlined without blood calcium determinations for fear of a hypercalcemia.

GORDON CHOWN, M.D., Winnipeg, Manit.

ANSWER.—The article on "The Thin Child and Calcium" deserves some comment. The author assumes that severe forms of underfunction of the parathyroid gland are an underlying factor in such habits as blinking, twitching, head nodding, bed wetting, and some cases of temper tantrums. In order to prove this statement it would be necessary to demonstrate a dysfunction of the parathyroid gland. The only possible means of showing parathyroid gland deficiency consists in finding a lowered serum calcium or the signs of manifest or latent tetany, such as increased nervous irritability on the application of a galvanic current (cathodal opening contraction less than 5 milliamperes); Erb's sign or the presence of the facial phenomenon, Chvostek's sign in which active muscular twitching occurs on mechanical stimulation of the muscles supplied by the facial nerve, or Trousseau's sign, which is characterized by a carpal contracture if a constriction is applied above the elbow.

The writer, Dr. Kenyon, who is advising "Mothers of the Health and Happiness Club," does not inform us that she has taken pains to establish a correct diagnosis of parathyroid deficiency and consequently one may question whether her assumption is correct. The diagnosis is certainly not a simple one and cannot be readily made.

The author continues describing an undernourished child who looks old for his years and holds his muscles tensely. He is overactive, sleeps little, and finds it hard to concentrate. The author states that these are sad looking children; they worry; they may become easily angry; they lack in physical endurance. The author believes that these children respond splendidly to calcium and parathyroid gland medication. This is doubtful. As the writer of the question says, these neuropathic children form a considerable part of every doctor's office practice. The biochemistry of this group of children is little understood. May it not be assumed that the gastro-intestinal symptoms, attacks of mucous diarrhea, and distressing or cyclic vomiting are due to the effect of an unstable nervous system on metabolic processes?

It is not uncommon in this group of children to encounter, during the emotional outbursts, acidosis, diminution in the alkali reserve in the blood, and a transient hypoglycemia. As a rule, contrary to what is found in tentany, these children are relaxed and hypotonic. It would be difficult or impossible to analyze the pathogenesis of these emotional states. There are undoubtedly hereditary, environmental and organic factors that are not readily discernible. But to say that they are almost invariably due to hypocalcemia or hypofunction of the parathyroid gland is going almost too far.

The author also advises among other things viosterol. It would seem that the public is being ill advised about the promiscuous use of this remedy. Physicians themselves have still to be educated in its use and dosage. Reports are just beginning to come in which seem to indicate that the dangers of hypermineralization have still to be ascertained.

Dr. Kenyon closes by saying that it is wonderful to see the thin child quiet down, become less combative, put on weight and really sleep after the calcium-parathyroid-viosterol treatment among several other things that are advised.

Medical authors who address themselves to the public should exercise considerable caution in giving advice about treatment. It would be well, too, if they based their advice and deductions on well founded clinical and scientific knowledge.

If the public is to be educated in medical matters, and it is right that it should be, the information should be useful, exact and harmless. Conditions and indications of treatment and the selection and dosage of remedies should invariably be referred to the family physician.

Alfred F. Hess in his book "Rickets, Osteomalacia and Tetany" (Lea & Febiger, 1929, pp. 399-400) has the following to say about the use of parathyroid extract: Since the parathyroid extract has been used in various clinics for two to three years it has not been found to be perfectly satisfactory. Clinical results are irregular and the rise in calcium variable. Some infants react with marked depression associated with pallor, vomiting and mild diarrhea, symptoms that may give cause for alarm. The extract does not act as a curative but is purely symptomatic, increasing the calcium in the blood by drawing on the calcium reserve of the bone.

McCOLLUM BALANCED DRY DIET FOR LABORATORY ALBINO RAT

To the Editor:—Will you kindly advise me concerning the exact composition of the McCollum balanced dry diet for the laboratory albino rat.

HARRY M. MILLER, JR., PH.D., Friday Harbor, Wash.

ANSWER.—Presumably the following ration is referred to (McCollum, E. V.: *Bull. Johns Hopkins Hosp.* **33**:202, 1902):

	Per Cent
Wheat	30
Maize	30
Rolled oats	30
Linseed meal	10

Whole milk is supplied ad libitum and twice a week fresh greens or carrots.

The ration recommended by Steenbock (*Science* **58**:449, 1923) is as follows:

	Per Cent
Yellow corn meal	76.0
Linseed meal	16.0
Commercial casein	5.0
Ground alfalfa	2.0
Sodium chloride	0.5
Calcium carbonate	0.5

Fresh whole milk is supplied ad libitum.

Sherman has employed a mixture of ground whole wheat, 3 parts; whole milk powder, 1 part, together with common salt equivalent to one per cent of the mixture. This has been modified to meet the requirements of lactation better (Smith, A. H., and Anderson, W. E.: *Science* **70**:98, 1929) as follows:

	Per Cent
Ground whole wheat	65.8
Whole milk powder	32.8
Calcium carbonate	0.7
Sodium chloride	0.7

Lettuce is also supplied daily; and during the period of lactation the females receive dried yeast three times a week.

H. M. Evans (*Am. J. Physiol.* **85**:154 [May] 1928) has recommended the following ration:

	Per Cent
Whole wheat	67.5
Casein	15.0
Whole milk powder	10.0
Sodium chloride	1.0
Calcium carbonate	1.5
Butter fat	5.0
Fresh lettuce	

All of these diets are discussed in the monograph of A. H. Smith and L. B. Mendel entitled "Praktisches Verfahren bei Ernährungsversuchen," in Abderhalden's Handbuch der biologischen Arbeitsmethoden, 1930, section IV, part 13, pp. 117-172.

BLOOD IN FETUS—DEATH OF FETUS AFTER INTERFERENCE WITH CIRCULATION

To the Editor:—Will you kindly answer the following questions or give references where the information might be found: 1. What is the average total volume of blood in a fetus at term, including the cord and placenta? 2. What percentage of the total is in the fetus? In the cord? In the placenta? 3. How long after compression of the cord will a six month fetus in utero live? A fetus at or near term? Please omit name.

M.D., Texas.

ANSWER.—1. As far as is known, no one has determined the amount of blood that is to be found in the fetus, the umbilical cord and the placenta at the same time. This question would be difficult to settle because each of the three components may vary considerably and the amount of blood would depend on the variations present. Thus, as far as the fetus is concerned, it is known that the the amount of blood varies with the size of the fetus and also with the time the cord is ligated. If a delay of a few minutes is made following the birth of the child before the cord is ligated, the child will obtain an additional 40 to 60 cc. of blood from the placenta. In general, the volume of blood found in a new-born baby is approximately one eleventh of the body weight. Since the average weight of new-born babies is about 3,100 Gm., the average amount of blood is about 280 Gm.; but factors other than body weight undoubtedly play a part in the volume of blood present.

2. Likewise the amount of blood to be found in the umbilical cord will vary with the length of the cord, the number of twists it has, the caliber of the blood vessels, and the number of blood vessels. The amount of blood in the placenta varies with the size of the organ, the richness of the villi, the size and number of infarcts, the amount of calcification and other factors.

3. It is difficult to say how long a 6 months fetus in utero can live after compression of the cord because clinically such an occurrence is extremely rare. Most likely the length of time is less than that for a full-term child. The latter may live as long as twenty minutes after compression of the cord, although this is unusual. Most babies do not survive more than ten to twelve minutes after the circulation in the cord is completely obliterated.

INJECTION METHOD FOR VARICOSE VEINS—SALT SOLUTION FOR CEREBRAL DEHYDRATION—MALARIAL TREATMENT OF DEMENTIA PARALYTICA

To the Editor:—1. When a solution of sodium chloride is used in the injection treatment of varicose veins, what strength solution is to be used? 2. What is the percentage of salt used in sodium chloride solution, when hypertonic salt solution is given intravenously, for cerebral edema or increased intracranial tension? 3. Please give me enough of the details of the treatment of syphilitic dementia paralytica by infection with malaria to enable me to treat a case by this method. Kindly omit name.

M.D., Montana.

ANSWER.—1. McLatchie (The Treatment of Varicose Veins by Intravenous Injections, published by the Macmillan Company, 60 Fifth Avenue, New York, in 1929) says that sodium chloride is usually employed in a 15 to 20 per cent solution. The quantity injected at one sitting is from 5 to 10 cc., but larger amounts can be used. For patients of an advanced age a stronger solution up to 25 per cent may be required.

Douthwaite (The Injection Treatment of Varicose Veins, published by Lewis and Company, Ltd., 28 Gower Place, London, W. C. 1, in 1928) says that a 20 per cent solution of sodium chloride injected in quantities of from 4 to 10 cc. gives, not infrequently, good results but is not certain in its effects. Cramplike pains are produced immediately after injection, similar in nature to those due to salicylate.

Kern and Angle (THE JOURNAL, Aug. 24, 1929) say that there are five solutions being used rather extensively in Europe and in this country, namely, sodium chloride, 15 to 30 per cent; sodium salicylate, 20 to 60 per cent; dextrose, 50 per cent; a mixture of sodium chloride, 10 per cent and sodium salicylate 25 per cent; and quinine and urea (0.5 Gm. of quinine and 0.25 Gm. of ethylurethane in 2 cc. of water). There are valid objections to all of these solutions. In the case of sodium chloride and sodium salicylate, they say, the cramp following the injection is severe and there is at times a very marked perivenitis after injection, with infiltration, redness and tenderness of the skin and subcutaneous tissue surrounding the vein.

The use of sodium chloride for this purpose is further discussed in an article in THE JOURNAL, March 9, 1929, by de Takáts. It might be well to call attention also to a Current Comment in THE JOURNAL, May 14, 1927, page 1571, concerning a case reported by Lomholt. This patient had been given five injections of 5 cc. each of 20 per cent sodium chloride solution. The saphenous vein became thrombotic up to the fossa ovalis and in two weeks the symptoms of pulmonary embolism developed. The patient overcame the attacks, but about one month after the injection treatment he died suddenly of embolism of the pulmonary artery. Lomholt (at that time) said that only one similar case is reported in the literature and in that case the embolism was traced to infected hemorrhoids.

2. This question was answered in Queries and Minor Notes (THE JOURNAL, May 5, 1927) under the heading "Hypertonic Salt Solution for Cerebral Dehydration." Fay (THE JOURNAL, May 19, 1923) tabulated fifteen cases in which hypertonic sodium chloride solution was injected. The proportions used in most of these cases were 15 per cent; in one, 18 per cent, and in the remainder, 35 per cent.

Peet (Reduction of Increased Intracranial Pressure by Intravenous Administration of Glucose and Hypertonic Ringer's Solution, THE JOURNAL, June 27, 1925) says that the rapid reduction of intracranial tension in acute intracranial traumas unassociated with shock is best accomplished by the intravenous administration of hypertonic Ringer's solution. Dextrose may be given later to maintain the lowered intracranial pressure. Hypertonic dextrose solution administered intravenously is indicated when acute intracranial pressure is associated with shock or hemorrhage, and in the less acute cases when com-

plicated by dehydration, nausea and vomiting. Dextrose has the following advantages over any of the salt solutions: prolonged action, no terminal rise in pressure, nontoxicity, nondehydration, increased blood volume in shock, and the control of acidosis.

The intravenous introduction of all hypertonic solutions must be made slowly. Any sudden change in the pulse is a warning to stop the flow of the solution for a moment, and further introductions must be at a slower rate. The subject is further discussed by Brain in the *British Medical Journal*, Jan. 21, 1928.

3. This treatment should not be undertaken by one who has not had considerable experience with the method. In the first place the treatment is being given more and more to a selected group of patients, as not all patients do well and there is some times considerable danger involved. The correspondent might read an article in THE JOURNAL, Feb. 21, 1925, by Bunker and Kirby, entitled "Treatment of General Paralysis by Inoculation with Malaria," and articles in the *Archives of Neurology and Psychiatry*, August, 1926, and October, 1929, by McIntyre and McIntyre and by DeAsis, respectively.

TULAREMIA AND WIDAL TEST

To the Editor:—A patient developed a sore on a finger, followed in a few days by adenopathy at the elbow and in the axilla. This was accompanied by chills and fever. After about two weeks the adenopathy disappeared but the fever continued, being about 100 to 104 F., usually about 102. At the end of two weeks a Widal test was returned positive, making the diagnosis of typhoid apparently conclusive. It occurs to me, however, that tularemia could be present in this case. Could it be that the presence of the tularemia could give a clumping of the typhoid bacteria and in that way a positive Widal when typhoid does not exist?

G. H. PARMENTER, M.D., Beecher City, Ill.

ANSWER.—Francis and Evans and Simpson have reported that serums giving a positive agglutination reaction with *Bacterium tularense* do not show cross-agglutination with *B. typhosus*, *B. paratyphosus* A and *B. paratyphosus* B. Cross-agglutination of *Brucella abortus* and *Brucella melitensis* does occur in about 37 per cent of serums which give a positive reaction for tularemia. The history and the proportionately higher titer reached by anti-*tularense* agglutinins usually leave no doubt as to the proper interpretation of the serologic observations in the event of cross-agglutination of *Brucella* and *Bacterium tularense*. In view of the fact that anti-*tularense* agglutinins persist in the serum indefinitely, it would still be possible to test the serum of the patient for the presence of tularemia infection. It is not uncommon to obtain a positive Widal reaction in patients who have been previously inoculated with the single typhoid vaccine or the triple vaccine (*typhosus*, *paratyphosus* A and *paratyphosus* B). A positive Widal reaction may also be obtained from persons who have recovered from a previous typhoid infection. With the exception of the occasional cross-agglutination of *Bacterium tularense* and *Brucella*, the agglutination reaction for tularemia is highly specific.

VARIATIONS IN SOIL AND VITAMIN CONTENT OF FOODS

To the Editor:—Do variations of the chemical or other elements in a soil change the amount or nature of the vitamins in the foods produced in that soil? May I have the sources of this information? I have become much interested in the vitamins and the soils and foods in this country as so many of our children have early dental caries. An analysis of the soils here is shortly to be made that will possibly give some slight information on this point, but I am wondering how different soils, acid, and otherwise, would affect, if any, the vitamin contents of the foods. I have not yet come across any statement on that line.

ELWOOD L. DAVIS, M.D., Kijabe, East Africa.

ANSWER.—We are not aware of any evidences that the nature of the vitamins in plant products can be altered by either intentional or fortuitous changes in the agricultural conditions. It is by no means unlikely, however, that the content of characteristic vitamins in edible species of plants varies with soil and other environmental conditions. These affect the rate of growth, the proportions of leaf to stem, tubers and roots, and the character of the fruit, so that the amount of a given vitamin in a single plant or unit weight of edible portion may be varied in unmistakable degree. Green leaves are as a rule richer in vitamin A than are the unpigmented parts of the plant. Variations in the vitamin content of green and "pale" lettuce have been demonstrated repeatedly; for example, in the studies of Crist and Dye at the Michigan Agricultural College, East Lansing. The antiscorbutic potency (content of vitamin C) of some plants varies with the stage of growth, which in turn is modified by soil conditions. The subject is one that is at present engaging the attention of scientific investigators, notably in the agricultural experiment stations. It is rather early to draw broad generalizations. Information regarding existing published articles should be obtainable from the Bureau of Chemistry and Soils and the Bureau of Home Economics, U. S. Department of Agriculture, Washington, D. C.

The effect of the composition of soils on the products of plant growth that it yields is shown in connection with the mineral ingredients of the vegetation. In South Africa, where there is a shortage of phosphorus in the soils of some of the grazing lands, the vegetation reflects this deficiency. Cattle maintained on the grasses exhibit pica, or depraved appetite, leading them to eat bones or other sources of the much desired element wherever available. Osteophagia, or bone eating, in cattle is reported to occur in parts of the southwest United States.

Soil conditions are conspicuously responsible for variations in the iodine content of edible plant foods. This is a matter of considerable moment in relation to goiter prophylaxis. As a rule the iodine content of plants tends to decrease as one proceeds inland. This is true of the Middle West and the Great Lakes region. Researches undertaken by the state of South Carolina have indicated that edible crops raised inland in that region have an unexpectedly large iodine content. The potatoes of the Piedmont area are relatively rich in iodine in comparison with the tubers from most potato-producing states. This is presumably due to unique soil conditions related to the geology of the region; possibly in part to the extensive use of Chilean fertilizers that are comparatively rich in iodine. The problems thus presented are within the domain of human nutrition and deserve further study.

With respect to dental caries it is hazardous to venture dogmatic opinions at the present stage of knowledge. The progress of investigations has been recorded from time to time. Undue consumption of sugar and the development of acidophilic flora in the mouth; shortage of vitamin D; lack of vitamin C with development of latent scurvy; lack of adequate oral hygiene; these and other factors have been charged from time to time with responsibility for caries and also periodontal disorders. It is too early to venture any tenable hypothesis, though there can be little doubt that disordered nutrition may readily play a part in the gradual development of profound dental defects.

ANTITOXIN IN DIPHTHERIA

To the Editor:—In looking over my old files of THE JOURNAL, I find an editorial in the issue of Dec. 12, 1914, on the administration of antitoxin in diphtheria, an article which I had completely forgotten. This article states that it is useless to give to a child of 44 pounds more than 2,000 units in an ordinary case, and 10,000 units in a very severe case. Also to a person weighing 132 pounds, it is useless to give more than 6,000 units in an ordinary case, or more than 30,000 units in a very severe case. Can you tell me whether this dosage is still considered the maximum that should be given? If so, it will prevent me ever again giving 165,000 units.

J. R. TRUSCOTT, M.D., Binford, N. D.

ANSWER.—There are probably few, if any, physicians of large experience in treating diphtheria who would be satisfied to limit the dose of antitoxin in all cases to 30,000 units. In many hospitals in which late and neglected cases of diphtheria are common, a total of 100,000 units is not infrequently given with apparent benefit. In the Providence City Hospital from 1910 to 1928 the average dose of antitoxin given to diphtheria patients varied by years from 14,338 to 38,126 units, and in 1928 the average dose given to patients who recovered was 26,610 units. The important thing is to give at the earliest moment an adequate dose of antitoxin. If part or all of the antitoxin is introduced directly into a vein, the total may be somewhat reduced. An excess of antitoxin does no harm, but a deficiency may allow fatal injury from the disease.

QUINIDINE IN AURICULAR FIBRILLATION

To the Editor:—A woman, aged 63, has had attacks of paroxysmal auricular fibrillation for the past three years. The history and physical examination are otherwise entirely negative. I have given her 25 grains (1.6 Gm.) of quinidine sulphate daily for the past four months without toxic effects. The attacks occur less frequently and are of shorter duration. Could I safely give larger doses? Would a larger daily administration of quinidine be apt to obviate any further attacks? Over how long a period of time may I administer 25 grains or more of this drug daily? Kindly omit name.

M.D., New York.

ANSWER.—The dose now being given is larger than that customarily given for a maintenance dose. The average dose for a long period of time is from 10 to 15 grains (0.65 to 1 Gm.) daily. The dose given here is almost the usual maximum dose for a short period of administration. Because of its toxic

action the propriety of long-continued administration except in a few selected cases is to be questioned. The dose might be increased safely, but to do so is to take an unwarranted risk. There have been a great many deaths. Parkinson and Campbell found a 4 per cent mortality in reports of cases collected from the literature. While many of the deaths were probably due to embolism, a large percentage were due to the toxic effect of the quinidine on the heart muscle or the respiratory center.

A larger dose would probably not obviate further attacks. If the dosage mentioned has been maintained already for four months it can probably be continued, as quinidine is excreted rapidly. It is a larger dose than is advisable, and the patient should be watched for toxic effects. Evidence of myocardial insufficiency has been observed in such cases which has disappeared when the quinidine has been discontinued.

The history and physical examination should be thoroughly reviewed for some possible clue to the factors inducing the attacks. A toxic thyroid especially should be ruled out. Gastrointestinal factors frequently precipitate attacks.

REMOVAL OF TAPEWORM IN PREGNANCY—AMPUTATION OF CERVIX AND STERILITY

To the Editor:—1. Is it considered safe to try to remove a tapeworm from a pregnant woman, or shortly after delivery, by the usual means of epsom salt and male fern? Is there any safer way to get rid of it during such a time? (I have heard of a miscarriage that was presumably caused by the treatment and I have wondered what was the safest way to treat such cases, which are not infrequent.) 2. How much can one depend on amputation of the cervix to prevent conception? (A former patient of mine went to America on furlough and I hear that she has had the operation done and I know she was keen on preventing further conceptions. What result may be expected?)

ELWOOD L. DAVIS, M.D., Kijabe, East Africa.

ANSWER.—1. Abortion or premature labor may occur as the result of drastic treatment for the removal of a tapeworm during pregnancy. If the patient is near term it is especially advisable to wait until after delivery before attempting the removal of the tapeworm. During the puerperium there is no harm in giving the customary drugs for tenia, but it is best to keep the baby away from the breast for one or two days after the anthelmintics are taken by the patient.

2. Amputation of the cervix is by no means a certain method of preventing conception. Many women who have this operation performed become pregnant afterward, but a certain proportion of them have miscarriages and a still larger number have dystocia during labor. If there is an infection or so-called erosion of the remaining portion of the cervix, sterility may result but even this is by no means a constant occurrence. Perhaps the patient to whom the questionnaire refers may have had a sterilization operation performed when the cervix was amputated.

LIME WATER IN INFANT FEEDING

To the Editor:—Will you please give me your opinion concerning the use of lime water in milk modifications for infants? How much calcium will be added to the milk per ounce of saturated lime water? Is there danger of including too much calcium by this addition? I would be glad to know the advantages and disadvantages of its use.

MARGARET S. CHANEY, Manhattan, Kan.

ANSWER.—Lime water is a saturated aqueous solution containing 0.14 per cent of pure calcium hydroxide. Its addition to cow's milk formulas results in inhibiting the formation of curds (paracaseinates). This action is proportionate to the amounts added. As ordinarily used, 1 ounce (30 cc.) of lime water is added to the formula for each 20 ounces (600 cc.) of milk in the mixture (that is, 5 per cent of lime water). Larger amounts have been used. Lime water is not given the serious consideration at present that it enjoyed formerly when its addition to all artificial formulas was almost routine.

OINTMENT FOR INTERSTITIAL KERATITIS

To the Editor:—I would appreciate learning the formula for Casey Wood's ointment as used for interstitial keratitic lesions.

HARRY V. THOMAS, M.D., Buckhannon, W. Va.

ANSWER.—The ointment in question was the old citrine ointment (old U. S. P. unguentum hydrargyri nitratis) with the variation that crude cod liver oil was used as a base instead of lard oil. As fuming nitric acid is used, the ointment has to be allowed to stand about six months before it is use in order to allow the acid fumes to dissipate.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 7 and 8, 1930. Sec., Dr. H. P. Mills, 14 N. Central Ave., Phoenix, Ariz.

ARKANSAS: Little Rock, Nov. 3, 1930. B. Science. Sec., Mr. Louis E. Grebauer, Little Rock, Ark. Eclectic Board, Little Rock, Nov. 11 and 12, 1930. Sec., Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith, Ark. Regular, Little Rock, Nov. 11-12, 1930. Sec., Dr. Sam J. Albright, Searcy, Ark.

COLORADO: Denver, Oct. 7, 1930. Sec., Dr. W. W. Williams, 224 State Capitol Bldg., Denver, Colo.

CONNECTICUT: New Haven, Oct. 11, 1930. Basic Science. Address State Board of Healing Arts, 1895 Yale Station, New Haven, Conn. Regular, Nov. 11 and 12, 1930. Sec., Dr. T. P. Murdock, 147 W. Main St., Meriden, Conn. Homeopathic, Nov. 10, 1930. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven, Conn.

FLORIDA: Jacksonville, Nov. 10-11, 1930. Sec., Dr. W. M. Rowlett, P. O. Box 603, Tampa, Fla.

GEORGIA: Atlanta, Oct. 14-16, 1930. Sec., Dr. B. T. Wise, Americus, Ga.

IDAHO: Boise, Oct. 7, 1930. Comm., Hon. F. E. Lukens, Boise, Idaho.

ILLINOIS: Chicago, Oct. 14-16, 1930. Supt., Mr. P. B. Johnson, Springfield, Ill.

MAINE: Portland, Nov. 11-12, 1930. Sec., Dr. Adam P. Leighton, 192 State St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14, 1930. Sec., Dr. Frank M. Vaughan, 144 State House, Boston, Mass.

MICHIGAN: Lansing, Oct. 14-16, 1930. Sec., Dr. F. C. Warnshuis, 1010 Macabee Bldg., Detroit, Mich.

MINNESOTA: Minneapolis, Oct. 7 and 8, 1930. Basic Science. Sec., Dr. E. T. Bell, 110 Anatomy Bldg., University of Minnesota, Minneapolis, Minn. Reg. Minneapolis, Oct. 21-23, 1930. Sec., Dr. E. J. Engberg, 524 Lowry Bldg., St. Paul, Minn.

MONTANA: Helena, Oct. 7, 1930. Sec., Dr. S. A. Cooney, Power Block, Helena, Mont.

NEBRASKA: Lincoln, Oct. 7-8, 1930. Basic Science. Sec., Mr. Ernest M. Pollard, Lincoln, Neb. Regular, Lincoln, Nov. 20-22, 1930.

NEVADA: Carson City, Nov. 3-5, 1930. Sec., Dr. Edward E. Hamer, Carson City, Nev.

NEW MEXICO: Santa Fe, Oct. 13-14, 1930. Sec., Dr. W. T. Joyner, 20-21 First National Bank Bldg., Roswell, N. M.

SOUTH CAROLINA: Columbia, Nov. 11, 1930. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia, S. C.

TEXAS: Waco, Nov. 18-20, 1930. Sec., Dr. T. J. Crowe, 918-19 Mercantile Bank Bldg., Dallas, Texas.

WEST VIRGINIA: Morgantown, Nov. 20, 1930. Sec., Dr. W. T. Henshaw, Charleston, W. Va.

WYOMING: Cheyenne, Oct. 6, 1930. Sec., Dr. H. W. Hassed, Capitol Bldg., Cheyenne, Wyo.

Rhode Island July Examination

Mr. Lester A. Round, director of the State Public Health Commission of Rhode Island, reports the written and practical examination held at Providence, July 2-3, 1930. The examination covered 7 subjects and included 70 questions. An average of 80 per cent was required to pass. Twenty-eight candidates were examined, 27 of whom passed and 1 failed. The following colleges were represented:

PASSED College	Year Grad.	Per Cent
Georgetown University School of Medicine	(1930)	86.3,* 87.5,* 89.4*
Baltimore Medical College	(1908)	83.5
College of Phys. and Surgs., Baltimore	(1903)	80.7, (1910) 88.2
Johns Hopkins University School of Medicine	(1918)	96.4
Maryland Medical College	(1912)	82.4
Boston University School of Medicine	(1919)	(1929) 90.8, 89.7
Harvard University Medical School	(1913)	88.2, (1927) 87.7, (1929) 87.8, 89.1
Tufts College Medical School	(1915)	90.6, (1919) 89.1, (1922) 84.1, (1927) 86.5, (1928) 89.2
St. Louis University School of Medicine	(1930)	87.5*
Columbia Univ. College of Physicians and Surgeons	(1925)	90.8
Jefferson Medical College	(1910)	87.1
University of Pennsylvania Sch. of Med.	(1912)	91.1, (1913) 86.1
University of Vermont College of Medicine	(1913)	86
Medical College of Virginia	(1929)	87.2
Laval University Faculty of Medicine	(1911)	86.4

FAILED College	Year Grad.	Per Cent
Baltimore Medical College	(1899)	63.2

Mr. Round also reports that 3 candidates previously examined presented evidence of completion of internship and were granted licenses. One candidate was licensed, July 10, 1930, on the basis of a National Board of Medical Examiners certificate, after having passed an oral examination. The following colleges were represented:

Georgetown University School of Medicine	(1929)	91.7†
University of Oklahoma School of Medicine	(1929)	89.4‡
Jefferson Medical College	(1929)	89.2§
University of Pennsylvania School of Medicine	(1926)	N. B. M. Ex.

* Certificate withheld pending completion of internship.

† Examined, July 2, 1929; internship completed and license granted, Aug. 2, 1930.

‡ Examined, April 3, 1930; internship completed and license granted, July 15, 1930.

§ Examined, April 3, 1930; internship completed and license granted, Aug. 5, 1930.

Georgia June Examination

Dr. B. T. Wise, secretary of the Board of Medical Examiners of Georgia, reports the written examination held at Augusta, June 4 and 5, and Atlanta 11 and 12, 1930. The examination covered 10 subjects and included 100 questions. An average of 80 per cent was required to pass. Seventy candidates were examined and passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Howard University School of Medicine		(1930)	88.5
Emory University School of Medicine		(1930)	86.6, 87.6, 88.6, 89.1, 89.6, 90.2, 90.3, 90.5, 90.5, 90.6, 90.7, 90.8, 90.9, 91, 91.1, 91.4, 91.4, 91.6, 91.7, 91.8, 91.9, 92.1, 92.3, 92.3, 92.8, 93, 93.1, 93.2, 93.6, 93.6, 93.9, 94.3
University of Georgia Medical Department		(1930)	87.9, 89.7, 89.7, 89.7, 90, 90.2, 90.3, 90.4, 91.3, 91.3, 91.4, 91.5, 91.5, 91.6, 92, 92.1, 92.3, 92.3, 92.3, 92.5, 92.7, 92.8, 93.1, 93.3, 93.5, 93.9, 94.1, 94.7, 94.9, 96.7
Harvard University Medical School		(1920) 91.2, (1927)	92.3, 92.8
Columbia Univ. College of Physicians and Surgeons		(1930)	93.6
Jefferson Medical College		(1929)	94.1
Meharry Medical College		(1930)	91.8, 93.6

Dr. Wise also reports 7 physicians licensed through reciprocity with other states since Jan. 1, 1930. The following colleges were represented:

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University School of Medicine		(1926)	Dist. Colum.
State University of Iowa College of Medicine		(1922)	Iowa
University of Louisville School of Medicine		(1880)	Missouri
Tulane University of Louisiana School of Medicine		(1926)	Alabama
Johns Hopkins University School of Medicine		(1927)	Maryland
Meharry Medical College		(1929)	Tennessee
University of Tennessee College of Medicine		(1928)	Tennessee

Book Notices

OXIDATION-REDUCTION POTENTIALS. By L. Michaelis, M.D., Member of the Rockefeller Institute for Medical Research. Translated from the German manuscript by Louis B. Flexner. Cloth. Price, $3. Pp. 199, with 16 illustrations. Philadelphia: J. B. Lippincott Company, 1930.

This small volume in a relatively new but rapidly increasing field of interest is the latest in the series of monographs on experimental biology, founded by the late Jacques Loeb. The monographs on experimental biology were founded to bring together the results in special fields of research in separate treatises, especially those fields in which the methods of the exact science are applied to the study of biologic phenomena. The latest member of this series is a worthy companion to its predecessors. Dr. Michaelis is perhaps best known for his contributions to experimental medicine from the point of view of the applications of physical chemistry, a number of articles on which have appeared in the scientific journals under his name, and by his monograph in German on hydrogen ion concentration, a book which holds equal rank with Clark's masterpiece on hydrogen ion concentration. Dr. Michaelis, therefore, is eminently qualified to write on the subject of oxidation-reduction applied to biology. Within the past few years the traditional concepts of oxidation and reduction have undergone extensive revisions and additions, mostly by an application of the electronic theory. The applications to biology were not slow in coming, but the present author believes that a complete and clear exposition of the subject will hasten the application of this phase of physical chemistry to the problems of physiology or, in the wider sense, experimental biology. Wisely the author states: "Up to the present not a great deal has come from the efforts to avail biology of the fruits of these and similar investigations and one must be content to look to the future. The significance of the new point of view, however, is readily appreciated for it provides a clearer and thermodynamically correct approach to cell energetics and I venture to suggest that from these modest beginnings studies of the metabolism of the living cell will be directed to a new path." The book is divided into two main parts: physicochemical considerations and physiologic applications, and the physiologically important redox (that is, oxidation and reduction) systems. The first part gives a lucid and concise account of the theoretical foundations of reversible systems in which oxidation and reduction may take place, and the second part contains an equally lucid and a more interesting account of work already published on biologic systems susceptible of more or less exact measurement. Some topics treated are: sulphydril systems, an exposition of work in the important cystein-cystine system; the hemoglobin-oxyhemoglobin system; Warburg's respiratory ferment, and luciferin. The topics treated are not of immediate interest to the medical reader; for the medical scientist and for the experimental biologist it will be welcome as the first concise account of work in this new and important field applied to ascertaining how that anomalous machine, the human body, functions with such a degree of efficiency. The author is not hesitant in saying that it does so by systems which are in a constant state of oxidation and reduction equilibrium or the transfer of electrons which cause work.

NOUVEAU TRAITÉ DE PSYCHOLOGIE. Par Georges Dumas, professeur à la Sorbonne. Tome I: Notions préliminaires. Introduction. Méthodologie. Avec la collaboration de C. Champy, professeur à la Faculté de médecine de Paris, et al. Cloth. Price, 75 francs. Pp. 425, with 75 illustrations. Paris: Félix Alcan, 1930.

One cannot judge this ambitious treatise by the first volume. It is necessary to agree with the editor that a knowledge of zoology, anthropology, ethnology, linguistics and neurology is a desirable preliminary to the study of psychology. But such knowledge is not apt to be acquired from the chapters in this volume. Chapter 1 on the place of man in the animal series and Chapter 2 on anthropology are condensed to the point of incomprehensibility. It would have been much better simply to refer the readers to the works of Boule, Elliott, Smith, Deniker and Meillet, from which they are largely copied. Chapter 3 is more adequate and Chapter 4 is a masterly essay by an acknowledged authority in neurophysiology. Chapter 5 is again totally inadequate, the attempt to discuss the structure and special physiology of the nervous system in the space of seventy pages being doomed to failure. The remaining chapters are brief essays on the historical development and methodology of psychology.

BEHAVIOR PATTERNS OF THE ALIMENTARY TRACT. By T. Wingate Todd, M.B., Ch.B., F.R.C.S., Western Reserve University. The Beaumont Foundation Lectures, Series Number 9. Cloth. Price, $1. Pp. 79, with 12 illustrations. Baltimore: Williams & Wilkins Company, 1930.

This book represents three of the Beaumont Foundation lectures given by Dr. Todd before the Wayne County Medical Society of Detroit. It is a clear description of a study of the behavior of the alimentary canal by the roentgen method under the influence of local, reflex and emotional stimuli, such stimuli as water, milk, acid, alkali, carminatives, and heat and cold directly and indirectly applied. The study was made on more than 400 normal students and the observations were repeated on each student sufficiently often to give confidence in the behavior pattern outlined. It is a scholarly book and will be found of significant value to all workers in the physiology, pathology and therapy of the alimentary canal.

UNTERSUCHUNGEN ÜBER DAS DUNKELSEHEN MIT TSCHERNING'S PHOTOMETRISCHEN GLÄSERN. Von Hans Ulrik Möller, I. Assistent an der Augenabteilung des Reichshospitals. Paper. Pp. 149. Copenhagen: Arnold Busck, 1929.

This short monograph on dark adaptation gives an extensive and thorough review of all the literature of the subject, beginning with Aubert's work in 1865. The work includes investigations of the eye with regard to the various influences on the ultimate outcome, such as the diameter of the pupil, monocular and binocular results, and the size of the object. There are many investigations mentioned regarding the sensitivity in the various areas of the retina, the suppression of the visual acuity in reduced light and the variations of daylight. Extensive use was made of Tscherning's photometric glasses, first introduced in 1922, to vary the light intensity in applying its effects on the eye; also of Tscherning's lamprometer to measure the light intensity. Included are numerous tables and graphs regarding the ultimate results. The bibliography is practically complete, as it incorporates all the artieles published to date on this subject. It is well worth the attention of ophthalmologists interested in this subject.

LA VIE D'AMBROISE PARÉ (CHIRURGIEN DU ROY, ÉCRIVAIN). Par le Dr. Léon Michelet. Preface du le Dr. Victor Pauchet. Paper. Price, 10 francs. Pp. 160. Paris: Le Francois, 1930.

In this interesting sketch an account is given of Paré's birth in the city of Laval, of his rather lowly origin, of his early fondness for study, and also about a definite desire on his part as a youth for a surgical career. After being apprenticed to a barber in Laval for three years, during which time he learned little or no surgery, Paré went to Paris with an older brother. There he served another but a more profitable three years' apprenticeship and was able to attend the evening lectures at the Faculty of Medicine. Paré soon attracted the attention of his teachers because of his intelligence, sagacity, powers of observation and ardor for work. When there was a vacancy he was appointed compagnon chirurgien at the Hôtel-Dieu of Paris, where he spent three busy years. While there, Paré kept up his dissections and thus became a skilled anatomist. Next he is seen as an army surgeon with French troops in a campaign against the house of Austria in Savoy and Piedmont. While thus engaged, Paré found that the traditional boiling oil treatment of wounds was both painful and unsatisfactory. He substituted for it a mixture of yolk of egg, rose water and turpentine, which was quite successful. One of Paré's most audacious operations was the removal of a lance shaft from the skull of the noted Duc de Guise, using a pair of blacksmith's tongs. A number of other surgeons had given the case up, so Paré's success added much to his growing reputation. Later, he first ligated the blood vessels following amputation, which some have considered his chief contribution to surgery. In 1552, Henry II appointed him as one of his surgeons. Paré was taken a prisoner by the Spaniards but was released without paying ransom because he cured an obstinate leg ulcer for one of their leading captains. Late in 1554 he became a member of the College royal des chirurgiens. After the death of Henri II Paré served as surgeon to Francis II, Charles IX and Henry III. He was particularly well liked by Charles, who saved him, even though a Protestant, from the massacre of St. Bartholomew's. In 1569 that monarch sent him to treat the Marquis d'Auret, a prominent nobleman at Mons. Paré incised and drained a severe infection following a bullet wound and thus effected a cure where several others had failed. This result brought him recognition from the highest circles. As before, he continued to treat the rich and the poor without distinction. Paré cared for Admiral Coligny just before his assassination during the massacre of St. Bartholomew's. Paré wrote extensively, especially on surgery. He died in 1590, being 81 years old, after a busy career devoted to the relief of human suffering. This monograph is warmly recommended to those who wish to learn about the career of one who has been termed by not a few the Father of Surgery.

A COMPILATION OF CULTURE MEDIA FOR THE CULTIVATION OF MICRO-ORGANISMS. By Max Levine, Ph.D., Professor of Sanitary and Technical Bacteriology, Bacteriologist, Iowa Engineering Experiment Station, and H. W. Schoenlein, M.S. Cloth. Price, $15. Pp. 969. Baltimore: Williams & Wilkins Company, 1930.

This compilation was made at the request of the Society of American Bacteriologists. The authors searched the standard periodicals of both Europe and America from their beginning to the year 1926, as well as textbooks, monographs, bulletins and other periodicals. They found about 7,000 formulas for culture mediums and these they have arranged and classified into about 2,500 distinct mediums each of which is described as to its constituents, preparation, sterilization and use. The mediums are numbered consecutively, the last one being number 2543. Then follows an index of constituents of mediums; for example, cumumber juice is used in medium 2128; beef is used in fifty-one different mediums and the page on which each of these is described follows the word beef in the constituent index. Next comes the author index, and following that a list of names of persons who first described a particular medium with the reference in the medical journal in which the original article appeared. This is a handy arrangement of a lot of material which was scattered through the libraries and, as far as known, had not been collected and indexed in such fashion before. The authors and the Society of American Bacteriologists deserve credit for undertaking this work. It shows clearly how far the science of bacteriology has advanced since Robert Koch first prepared solid culture mediums.

UNSPEZIFISCHE THERAPIE UND NATÜRLICHE ABWEHRVORGÄNGE. Von Dr. Ferdinand Hoff, Privatdozent für innere Medizin an der Universität Erlangen. Paper. Price, 7.80 marks. Pp. 123, with 15 illustrations. Berlin: Julius Springer, 1930.

During the course of the past few years there have appeared in the German medical literature not only sharp criticisms of our entire therapeutic approach—and this from excellent clinicians—but searching inquiry into the philosophic background as well as the aims, methods and results. As an accompanying manifestation, a number of interesting monographs have appeared that deal with therapy from the nonspecific point of view: Among these, the book of Königer on "Krankenbehandlung durch Umstimmung" as well as this new one of Hoff. It is perhaps to be regretted that here in America the older review of Petersen's has not been followed by a comparable interest in a field that is of wide biologic and therapeutic interest. This monograph is most interesting because it takes up in considerable detail the theoretical background that underlies not only therapy by means of nonspecific agents but the therapeutic effect of diet as well. He makes clear the importance of the interval and the phase in treatment, and the chapter on the relation of the skin as a therapeutic approach presents much that is new and valuable. It is not a book for the "busy practitioner." It is a treatise that is of real value to the pharmacologist—but will probably not be read by the pharmacologist because it has little to say of drugs—to the therapeutist, and to medical men who find pleasure in taking therapeutic problems and observations which they constantly meet in the practice of medicine and unraveling them along lines that seem biologically rational.

A SYNOPSIS OF SURGERY. By Ernest W. Hey Groves, M.S., M.D., B.Sc., Surgeon to the Bristol General Hospital. Ninth edition. Cloth. Price, $5 net. Pp. 676, with illustrations. New York: William Wood & Company, 1930.

The author has attempted to include the important points of surgical practice in a brief synopsis. It is not meant to replace surgical textbooks but to supplement them by offering the student an opportunity to review the entire subject and to permit the busy practitioner to get a general and systematic survey of modern surgical practice. In this edition the work has been revised and brought down to date, with the inclusion of a number of new methods of treatment. The arrangement of a standard textbook is followed, but the outline form is used and only a few of the salient points are given under each heading. Some of the main subjects taken up are inflammation, acute and chronic infections, tumors, wounds and their treatment, anesthesia, and diseases and injuries of the various systems of the body. The various regions of the body, including the viscera, are then taken up in the same manner and the various surgical diseases and injuries are outlined. The amount of material included is enormous, because of the large field covered. It would seem difficult to improve this synopsis without making it so elaborate that it would lose its purpose. Fairly numerous diagrams and illustrations are included.

ESSAIS ET DOSAGES BIOLOGIQUES DES SUBSTANCES MÉDICAMENTEUSES. Par Jeanne Lévy, docteur ès sciences physiques. Préface du Professeur Tiffeneau. Paper. Price, 28 francs. Pp. 148, with 15 illustrations. Paris: Masson & Cie, 1930.

This small book on bio-assay is divided into three parts. The first part discusses general principles. The second part takes up the substances now recommended for systematic biologic standardization by the Committee of Hygiene of the League of Nations, which aims at the development of international units. It deals with the digitalis series, epinephrine, hypophysis, ergot, arsphenamines, insulin, thyroid and anthelmintics. The third part is devoted to the biologic standardization of substances not yet considered by the international commission: antipyretics, miotics and mydriatics, vasoconstrictors and vasodilators, local anesthetics, and a mixture of the opium alkaloids.

THE ACTION OF MUSCLES INCLUDING MUSCLE REST AND MUSCLE RE-EDUCATION. By Sir Colin Mackenzie, M.D., F.R.C.S., F.R.S., Professor of Comparative Anatomy and Director of the Australian Institute of Anatomy, Canberra. Second edition. Cloth. Price, $3.50. Pp. 288, with 100 illustrations. New York: Paul B. Hoeber, Inc., 1930.

This is a scholarly, timely and useful monograph. While the author is a professor of anatomy he is clearly a functional anatomist, and the book will be a valuable aid to the surgeon, the internist and the physical therapist who are dealing with the various types of muscle paralysis brought on by physical trauma or disease. The illustrations are clear, well selected, and helpful. The practical character of the book may be illustrated by the following quotations:

The function of muscle, the all important factor, cannot be successfully taught in the dissecting room; it can only be taught on the living and is largely a question of comparison, a comparison between the normal and the paralytic. Only on this plan can the question of origin and insertion of muscle have more than academic interest for the student and the practitioner.

What significance the expression massage and electricity has in the surgeon's mind the writer has often longed to know. In poliomyelitis no massage or electricity should be applied till recovery has taken place. These forms of treatment cannot initiate muscle function, but they can strengthen the action of recovered muscles. The principle cannot be repeated too often that an ounce of scientifically directed volitional effort is worth pounds of passive treatment. With this in mind it is wonderful what can be accomplished in a warm room with the aid of a table, a few pillows, and a sheet of powdered cardboard. Such indeed might be termed the Department of Myology. To this simple department the more complex ones of massage, electricity, and of those movements which owe their name sometimes to the country of origin and sometimes to their inventor, should be subsidiary. The myologist, looking at the case solely from the point of view of function, should determine whether in traumatic cases, at what stage, and of what nature, massage or electrical treatment or both would be beneficial. These should not be ordered indiscriminately and as a matter of routine.

DIE BEHANDLUNG DES HALLUX VALGUS. Von H. Timmer, Privatdozent für orthopädische Chirurgie an der Universität zu Amsterdam. Paper. Price, 4.50 marks. Pp. 62, with 21 illustrations. Leipzig: Johann Ambrosius Barth, 1930.

The author gives an orderly detailed description of the pathologic processes and etiologic factors in hallux valgus. He then describes the indications for correction of this deformity. Line drawings illustrate the various operative procedures described during the past fifty years, consisting of resections of the proximal phalanx or parts of it; the head of the first metatarsal or portions of it; resections of parts of the shaft of the first metatarsal; osteotomy of the first metatarsal; resections of the first cuneiform metatarsal joint; wedge resections of the first cuneiform bone; operations on the sesamoids, tendons and capsules, and combinations of the foregoing. The conservative, bloodless treatment for moderate cases by manipulation, splints, plaster of paris and shoes is described. Timmer concludes with remarks on the necessity for varying the type of treatment according to the indications. This little volume is worthy of study by orthopedists as well as by the general surgeon. It will impress on the reader the fact that this deformity should not be considered lightly.

HANDBUCH DER INNEREN SEKRETION: EINE UMFASSENDE DARSTELLUNG DER ANATOMIE, PHYSIOLOGIE UND PATHOLOGIE DER ENDOKRINEN DRÜSEN. Band II, Lieferung 7. Herausgegeben von Dr. Max Hirsch. Paper. Price, 7 marks. Pp. 1429-1492. Leipzig: Curt Kabitzsch, 1930.

This section of the larger work contains three brief chapters on the general problem of fat metabolism as related to the endocrine glands. There is a chapter on morphology or, rather, the occurrence of fats in the endocrine glands themselves by Dr. Bererich and Dr. Jaffe; a short chapter by Dr. Handovsky on the chemistry of the aliphatic lipoids; and a somewhat longer chapter by Drs. Westphal and Mann of Hanover on the clinical physiology and pathology of fat metabolism. This chapter is the most important in the present section. The authors deal particularly with the disturbances in the lipoids associated with changes in the endocrine glands, such as the change in the distribution of fats in the female on puberty, the decrease in the blood cholesterol during gestation in mammals, and the increase in blood cholesterol in hypothyroidism and the lipemia of diabetes. The authors are to be commended on their brevity in theorization, with the present dearth of accurate information of the mechanism of lipoid changes in all these conditions. They conclude (p. 1475) that "we must assume that the endocrine glands influence lipoid metabolism just as they influence fat and carbohydrate metabolism, but our present knowledge does not furnish an explanation of the manner or mechanism of this influence."

KLINIK UND THERAPIE DER ALTERSKRANKHEITEN DARGESTELLT FÜR DEN PRAKTIKER. Von Hofrat Professor Dr. Hermann Schlesinger, Vorstand der 3. medizinischen Abteilung des allgemeinen Krankenhauses in Wien. Paper. Price, 6 marks. Pp. 132. Leipzig: Georg Thieme, 1930.

This modest and inexpensive little volume is designed for the medical practitioner. Theoretical considerations are largely eliminated. The main disorders associated with old age are briefly described, differential diagnoses given, and therapies outlined, with the author's experience and success and failures for the different methods of management. The little monograph bears the imprint of a sane and sound medical practitioner with wide experience. In no place does Professor Schlesinger appear to have fallen a victim to the fads of the hour. The modern so-called rejuvenation is briefly discussed. Dr. Schlesinger questions the value and the safety of the Steinach or the Voronoff operations. He remarks, "I have studied many patients subjected to the rejuvenation operation of Steinach but I have practically never seen the physical or mental improvement that optimistic physicians so frequently describe." While the monograph cannot be classed in the group of major contributions to the art of medicine, practitioners will find it a useful and helpful guide.

MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS. By Charles H. May, M.D., Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital. Thirteenth edition. Cloth. Price, $4 net. Pp. 461, with 374 illustrations. New York: William Wood & Company, 1930.

This is a revision of the well known compend of eye diseases, with the addition of some new plates and a chapter on the slit lamp and corneal microscope, written by T. Harrison Butler for the sixth British edition. The arrangement is the same as in previous editions, the anatomy and physiology of the structure being given at the beginning of each chapter, followed by the various clinical entities, each one being discussed under varieties, subjective symptoms, objective symptoms, complications, etiology, prognosis and treatment. Operative procedures are described in the chapter dealing with the disease and not in a separate chapter on operations. Chapter XXVI deals with general principles of eye surgery and preparation of the eye for operation as well as ocular therapeutics. The final chapter deals with ocular manifestation in general disease. The book is a compact work on the essentials of ophthalmology. While brief and of little interest to the ophthalmologist, it serves a useful rôle for the medical student and the general practitioner.

DIE WISSENSCHAFTLICHEN GRUNDLAGEN DER HUNGER- UND DURSTKUREN. Von Dr. Hans Günther, Professor an der Universität Leipzig. Paper. Price, 8 marks. Pp. 171. Leipzig: S. Hirzel, 1930.

This is a fairly useful treatise on an old subject. The practice of curing disease by fasting runs back to the earliest records of medical therapy. At certain periods the fasting cure has been applied to almost every known malady and there has not been lacking development of this therapy in the direction of fads and cultism. Dr. Günther presents fairly complete historical accounts of the fasting cures. He presents conditions today under which the good doctor may use short periods of complete fasting or periods of undernutrition as useful adjuncts to other therapies. There is no faddism in the book. For example, Dr. Günther says on page 58 that fasting is an unnecessary procedure in adiposity. There are other adequate methods of handling most of these conditions. In rheumatism there is no doubt that in many cases the patient's symptoms are improved

by a period of fasting. The symptoms, however, are apt to return on realimentation. The second part of the monograph deals with so-called thirst cures. Dr. Günther uses this term essentially in the sense of dry diets, that is, diets deficient in water. The author ends with the plea (p. 93) for more critical study of the value and the mechanism of the temporary improvement of symptoms by fasting in various diseases.

LA RATE ORGANE RÉSERVOIR. Par Léon Binet, professeur agrégé de physiologie à la Faculté de médecine de Paris. Paper. Price, 20 francs. Pp. 116, with illustrations. Paris: Masson & Cie, 1930.

This is a concise and scholarly account of knowledge of the contractivity of the spleen. It is now well established that the spleen acts as a considerable reservoir for the blood, that the musculature of the spleen is so arranged that its contraction forces this blood into the general circulation, and that its relaxation withdraws considerable blood from the general circulation. Binet outlines and describes experiments showing the nervous and humoral mechanisms of this motor behavior of the spleen. A useful and reliable monograph.

Medicolegal

Infringement of Copyright of Medical Papers

(Schellberg v. Empringham (U. S.), 36 Fed. (2d) 991)

One Oscar Boto Schellberg was the president and manager of an institution bearing his name, where treatments known as "colonic therapy" were administered. In June, 1922, an article written by him was published in the *International Journal of Surgery*, entitled "The Incorrigible Colon Corrected by Medicated Irrigation." In January, 1923, another article by Schellberg appeared in the same publication, entitled "Technique of Colon Irrigation." The issues of the *International Journal of Surgery* containing Schellberg's articles were copyrighted by the International Journal of Surgery Company. So far as the copyrights covered Schellberg's particular articles, they were obtained with his acquiescence and held in trust for him. Schellberg procured a number of reprints of his articles, and they were taken to his colonic institute. From time to time they were distributed to his patients and to physicians and other persons. Copies were kept on a stand in the reception room of the institute, where they might be examined or carried away by visitors. The primary purpose of the distribution of these reprints was, it was said, to give information to persons interested in the subject discussed in them and to relieve Schellberg of the necessity of orally explaining his system of treatment to those who might wish to learn about it. None of the reprints carried a notice of copyright of the printed material, but each of them carried an inscription on its cover to the effect that it was a reprint of an article which had appeared in the *International Journal of Surgery*. In 1923, Schellberg developed the subject-matter of his previous articles into a copyrighted book, entitled "Colonic Therapy in the Treatment of Disease."

The defendant Empringham was an Episcopalian minister. He was, in 1924, the superintendent of the Church Temperance Society, closely identified with which was another corporation, the Health Education Society, Inc. In September, 1924, Empringham published a book entitled "Intestinal Gardening for the Prolongation of Youth." It contained a considerable amount of material copied bodily from the *International Journal of Surgery* reprint, for which due credit was given to Schellberg and the *Journal*. It contained also certain cuts that Empringham had obtained from Schellberg. In a later edition of Empringham's book, however, most, if not all, of Schellberg's material that had appeared in the previous edition was incorporated, but none of it was credited to Schellberg. Schellberg thereupon brought suit in the U. S. District Court, S. D., New York, against Empringham and the Health Education Society, Inc., based on the infringement.

Empringham's defense was predicated principally on the contention that his copying had been done from the reprints from the *International Journal of Surgery* and not from Schellberg's book. No copyright protection applied to such reprints, he claimed, because they carried no copyright notice. Moreover, he claimed, such protection as might have been afforded Schellberg's articles by the copyrights on the magazines in which they originally appeared was abandoned when the reprints were publicly distributed. Further defenses, not material to present purposes, were that Schellberg authorized Empringham to copy the reprints and that Empringham, before he began his infringement, had no notice of a copyright on Schellberg's articles.

Coming to the question as to whether the distribution of the unmarked reprints constituted an abandonment of the copyright, said the court, it is to be remembered that such reprints were freely distributed to persons who visited the Schellberg Institute. It is fair to assume that the number distributed was fairly large. The reprints, which are of considerable length, were presumably carried away from the institute for perusal and studied by persons who obtained them. Notwithstanding all this, the court concluded that Schellberg should not be held to have dedicated his articles to the public. The distribution of his reprints which he made and which he authorized Empringham to make was for a specific and limited purpose; namely, for the instruction of the persons who, as prospective patients of the institute, might be interested in the subjects which the articles discussed. The slavishly copied matter taken from Schellberg, whether regarded as having been lifted from Schellberg's articles or from his book, was sufficient, the court concluded, to make out a case of infringement. Judgment was therefore awarded against Empringham and the Health Education Society, Inc., and against the publisher of the second edition of Empringham's book.

Ludwig's Angina After Dental Extraction an Accident

(International Travelers' Ass'n v. Francis (Texas), 23 S. W. (2d) 282)

Marvin Lee Francis employed a regularly licensed practicing dentist to extract a wisdom tooth, rather deeply embedded in the gum. At the time of the extraction there was no swelling of the gums, no redness and no pus. It was necessary to go deeper into the tissues to effect extraction than is ordinarily the case. Infection followed promptly. Within three days, the mouth and gums were badly and perceptibly involved, and in eight days the patient was dead. His life was insured by a mutual assessment accident insurance company, in a policy providing for the payment of $5,000 in event of death caused "solely and exclusively by external, violent and accidental means." Suit was brought to collect the insurance money payable under the policy. The trial court found that the death was accidental but denied recovery because of failure to give proper notice of the death. The court of civil appeals likewise found that the death was accidental but, having concluded that the notice of death was given as required, reversed the judgment of the trial court and rendered judgment in favor of the beneficiary under the policy. The case was thereupon appealed to the Supreme Court of Texas.

The drawing of the tooth and the treatment following, said the Supreme Court, were of course purposeful and not accidental, but the infection was not the necessary or usual result of this purposeful act. It was extraordinary, unusual and very rare. The proper surgical act therefore must have been accompanied by something unexpected, unforeseen and improbable. This unforeseen, unexpected and improbable thing was the injection of the pathogenic organisms into the tissues. Just how they were injected the evidence does not show with mathematical precision, and in the nature of things this can never be done in any case. That they were introduced into the tissues at the time of and as a part of the surgical act of extracting the tooth and treating the lacerated tissues seems to be a logical deduction from the facts proved. The infection was caused either by the entrance of germs on the dental instruments used, or from cotton used by the dentist in his treatment, or by some other means; but at all events germs found their way into the tooth socket, did their deadly work and produced an unusual, unlooked for and unforeseen result, death. There was, in fact, no serious contention but that the death of the insured was "accidental."

The policy, however, did not insure the deceased against accidental death; it insured him only against death caused "solely and exclusively by external, violent and accidental means." The insurer pointed out that there was a distinction between policies which insure against accidental death and policies insuring against death by accidental means. The Supreme Court, however, reached the conclusion that the death was due to "accidental means," within the meaning of the policy, by the following reasoning:

> In order, however, for the recovery on the policy to be affirmed, we must conclude that the death was produced by accidental means. We have concluded that it was so produced. There can be no doubt but that the extraction of the tooth was the "means" of infection. This is so regardless of the question as to exactly how and when the pathogenic organisms entered the tissues — whether by contact with the surgical instruments and dressings, and thence into the lacerated tissues, or whether from some other attendant source. The fact is there was no infection until the flesh was lacerated by the pulling of the tooth, and the infection followed so closely that we cannot in a practical consideration of the subject separate the time of infection from the time of laceration; nor have the doctors attempted to do so, as shown by their testimony above quoted. In fact, they regard the drawing of the tooth as the cause of the infection. If we consider the drawing of the tooth as the means of infection, then clearly that means was external, violent, and accidental.

The judgment of the court of civil appeals in favor of the beneficiary under the policy was therefore affirmed.

Damages for a Broken Hypodermic Needle

(Alonzo v. Rogers (Wash.), 283 P. 709)

The patient, Alonzo, applied to the defendant, a dentist, to have a tooth extracted. The dentist undertook to inject into the gum, through a hypodermic needle, a suitable anesthetic. In the course of the injection, the point of the needle broke off in the patient's gum. Although a roentgenogram showed approximately the position of the part of the broken needle, all efforts to remove it, even an operation under a general anesthetic, were unsuccessful. The broken part of the needle, it was claimed, had worked upward into the roof of the patient's mouth and caused him much suffering. He sued the dentist, and judgment was rendered in his favor. Thereupon the dentist appealed to the Supreme Court of Washington.

The patient attributed the breaking of the needle to negligence on the part of the dentist. The dentist, however, asserted that it was due to careless movements on the part of the patient, notwithstanding that he had been cautioned not to move. Neither the patient nor his wife, who was with him when the needle was broken, spoke English intelligently, but through an interpreter they denied that the dentist had cautioned him. A dentist, testifying for the defendant, said that in his experience it was not unusual for a needle to break while being used for the injection of fluid to produce local anesthesia. Other dentists called by the defendant testified that the needle used was a standard one, but that, because of the delicacy of the instrument, a needle would sometimes break and become lodged in the mouth of the patient, notwithstanding the utmost care and skill on the part of the operator. One of the expert witnesses called by the defendant testified, however, that a needle is a delicate instrument, "if it isn't used right." There was testimony to the effect that the treatment adopted by the dentist after the accident conformed to that followed by competent dentists. On behalf of the dentist, it was argued that the evidence was not sufficient to warrant the jury in finding that he was negligent in any such substantial degree as to render him liable for the injury, since the only direct evidence was that concerning the injection and the breaking of the needle. The Supreme Court, however, took a different view and held that, considering the degree of care with which the defendant was charged in the use of the hypodermic needle, and in view of his undertaking as a dental surgeon to treat the patient, the evidence presented a question of fact for the jury and warranted it in believing that negligent manipulation of the needle by the defendant caused it to break. We are not unmindful, said the court, of the testimony of one of the dental witnesses, that the needle is a delicate instrument, "if it isn't used right." The testimony that such occurrences are not unusual was not such as to compel the jury to find that the needle was not so negligently manipulated while in the patient's gum as to cause the needle to break. The evidence showed that the needle was of a standard type, and that no injurious results would be expected unless from careless use of it by the operator or unless the patient moved his head during the operation. Both inspection and use of the needle were at the time under the exclusive control of the dentist. While the testimony was conflicting as to whether the patient moved his head and thus broke the needle, the jury found that he did not do so. There was no testimony that the breaking of hypodermic needles by dental surgeons in the gums of their patients was of frequent occurrence. The Supreme Court concluded:

> Surely such results are unnecessary and are not to be anticipated if the proper degree of care is exercised by dental surgeons. If such accidents were frequent, the dentists would quit using hypodermic needles and employ some other method for deadening pain.

The judgment in favor of the patient was affirmed.

Evidence: Expert Witnesses.—Many physicians of well known ability and standing testified as witnesses for the appellant that, in their opinion, the appellee's paralysis did not result from the blows described by him. The record, however, also contains the testimony of a physician who testified as a witness for the appellee, whose opinion differed from that of the appellant's witnesses. However much we may be impressed by the evidence of the physicians who testified for the appellant, says the Court of Civil Appeals of Texas, Eastland, we cannot say that their opinion was clearly right and that the contrary opinion of the physician testifying for the appellee was clearly wrong. That is a question of credibility and weight of which we are not to judge. The jury clearly could accept the opinion of one expert rather than the contrary opinion of many experts. To hold otherwise would be tantamount to holding that a jury's verdict, in order to be upheld, must be in favor of the party offering the greater number of expert witnesses to testify as to his contention.—*Texas Employers' Insurance Association v. Clark (Texas), 23 S. W. 405.*

Society Proceedings

COMING MEETINGS

American Academy of Ophthalmology and Otolaryngology, Chicago, October 27-31. Dr. W. P. Wherry, Medical Arts Building, Omaha, Secretary.

American Academy of Physical Therapy, Boston, October 22-24. Dr. Thomas L. Smyth, 111 North Eighth Street, Allentown, Pennsylvania, Secretary.

American Association of Railway Surgeons, Chicago, November 5-7. Dr. Louis J. Mitchell, 29 East Madison Street, Chicago, Secretary.

American College of Surgeons, Philadelphia, October 13-17. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Hospital Association, New Orleans, October 20-24. Dr. Bert W. Caldwell, 18 East Division Street, Chicago, Executive Secretary.

American Physical Therapy Association, Chicago, Oct. 6-10. Dr. C. C. Vinton, 1650 Broadway, New York, Secretary.

American Public Health Association, Fort Worth, Texas, October 27-31. Mr. Homer N. Calver, 370 Seventh Avenue, New York, Executive Secretary.

Association of American Medical Colleges, Denver, October 14-16. Dr. Fred C. Zapffe, 25 East Washington Street, Chicago, Secretary.

Central Association of Obstetricians and Gynecologists, Kansas City and Excelsior Springs, Missouri, October 9-11. Dr. E. D. Plass, University Hospital, Iowa City, Iowa, Secretary.

Central States Pediatric Society, Memphis, Tenn., November 7-8. Dr. A. H. Parmelee, 310 South Michigan Boulevard, Chicago, Secretary.

Delaware, Medical Society of, Dover, Oct. 14-15. Dr. W. O. La Motte, Medical Arts Building, Wilmington, Secretary.

Medical and Surgical Association of the Southwest, El Paso, Texas, November 6-8. Dr. W. Warner Watkins, Box 1587, Phoenix, Ariz., Secretary.

Mississippi Valley Conference on Tuberculosis, Rockford, Ill., October 14-16. Dr. Robinson Bosworth, Box 1005, Rockford, Secretary.

Missouri Valley, Medical Society of the, Des Moines, Iowa, October 15-17. Dr. Joseph D. McCarthy, 107 South Seventeenth Street, Omaha, Secretary.

Pennsylvania, Medical Society of the State of, Johnstown, Oct. 6-9. Dr. Walter F. Donaldson, 500 Penn Avenue, Pittsburgh, Secretary.

Southern Medical Association, Louisville, Ky., November 11-14. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Virginia, Medical Society of, Norfolk, October 21-23. Miss Agnes V. Edwards, 104½ West Grace Street, Richmond, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Issues of periodicals are kept on file for a period of five years only. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending, but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, New York

20: 815-923 (Aug.) 1930

Significance of Thermophilic Bacteria in Pasteurized Milk. L. A. Rogers and W. C. Frazier, Washington, D. C.—p. 815.

*Hygiene of Towel. H. D. Pease and L. C. Himebaugh, New York.—p. 820.

Problems in Public Health Administration. F. C. Ruhland, Syracuse, N. Y.—p. 833.

Report of Visits to Local Registrars of Vital Statistics in Maryland. J. Collinson, Baltimore.—p. 839.

Elusive Features in Epidemiology of Common Cold. W. H. Frost, Baltimore.—p. 843.

Hospital Facilities for Treatment of Cancer. S. M. Wood, New York.—p. 849.

Hygiene of Towel.—The results of the investigation made by Pease and Himebaugh show some of the effects of the use or misuse of towels and the important part towels may play in the spread of bacteria which may be of disease-producing types. Although public health officials have recognized that the skin, especially that of the hands, may be one of the most important modes of transfer of disease-producing organisms, and that diseases other than those of known bacterial origin may also be readily carried by the same means, the part played by the misuse of towels and the relative merits of types of towels have not received so much attention. Tests to secure evidence regarding these points indicate that: Bacteria are transferred from the hands to the towel in surprisingly large numbers. Bacteria are readily transferred from one user to another through the medium of the towel. Most of the common disease-producing bacteria, even though in a dry state, may remain alive on the towel for at least twenty-four hours and generally longer, making the common towel a constant and continued source of danger. When the towel is used repeatedly by the same individual the numbers of bacteria on and in it are increased and some of these in turn may be restored to the hands of the user. Potential danger exists of a possible reinfection of the hands with disease-producing organisms left on the towel by prior use. Repeated drying with an individual towel is not a good sanitary practice. The Turkish towel, owing to its construction and a consequently greater number of points of contact with the skin, removes greater numbers of bacteria and dirt particles from the skin than the huck towel or the paper towel.

Annals of Internal Medicine, Ann Arbor, Mich.

4: 113-210 (Aug.) 1930

In Defense of Stethoscope. J. B. Herrick, Chicago.—p. 113.

Use of Iodine in Exophthalmic Goiter. J. H. Means, Boston.—p. 117.

*Association of Chronic Ulcerative Colitis and Multiple Polyps. J. A. Bargen and M. W. Comfort, Rochester, Minn.—p. 122.

*Etiology of Gallstones. E. L. Walsh and A. C. Ivy, Chicago.—p. 134.

*Later Results in Use of Stramonium in Postencephalitic Syndrome. A. L. Jacobson and F. Epplen, Seattle.—p. 145.

Curing Ulcer Patient. S. Harris, Birmingham, Ala.—p. 149.

*Unusual Addison's Syndromes. A. B. Brower, Dayton, Ohio.—p. 166.

History of Certain Medical Instruments. L. Clendening, Kansas City, Kan.—p. 176.

Association of Chronic Ulcerative Colitis and Multiple Polyps.—According to Bargen and Comfort, polyposis of the large intestine is present in 10 per cent of cases of chronic ulcerative colitis. It occurs after severe colitis or in long-standing, slowly progressing colitis in which there is a tendency to recurrent severe exacerbations of the disease. The polyps contain large amounts of inflammatory tissue. Proctoscopic examination is the best means of diagnosis in most cases. Roentgenologic examination gives valuable information in many cases. The authors have had an opportunity to see patients in severe exacerbations of bacterial chronic ulcerative colitis, with formation of polyps later, and finally with malignant disease. Studies are under way to trace the formation of the polyps and their subsequent course in a large series of specimens obtained at operation and at necropsy.

Etiology of Gallstones.—Walsh and Ivy summarize the results of their observations as follows: Human gallstones of the mixed cholesterol variety are dissolved when placed in the gallbladder of the dog. A diffuse fibrous cholecystitis prevents the solution of the gallstone, which is due to the failure of such a gallbladder to concentrate the bile. Concentration of the dog's bile is necessary for solution of the gallstone. They were unable to show that the addition of olive oil or coconut oil to the diet significantly altered the rate of solution of the stone. However, this does not show that such vegetable oils might not be of prophylactic value, since the presence of the gallstones in the gallbladder caused changes in its histologic appearance. Biliary stasis, if it leads to a definite cholecystitis in the dog, definitely delays the solution of the gallstone. Biliary stasis leads to histologic changes in the gallbladder of the dog. The difference in the cholesterol content of dog's bile and human bile per se does not explain why dog's gallbladder bile dissolves the human gallstone. Soap, especially the soap of lauric acid, is a potent solvent of cholesterol and the mixed type of human gallstone. There is a marked difference between the cholesterol-saponifiable ratio in human bile and dog bile, which, the authors believe, explains why gallstones of the cholesterol variety have never been produced in the dog and why the dog's gallbladder dissolves the human gallstone. They have not proved this, however.

Use of Stramonium in Postencephalitic Syndrome.—Jacobson and Epplen regard stramonium as a valuable drug in palliation of the parkinsonian syndrome and associated symptoms. Very large doses are necessary. Toxic manifestations are rare and seemingly evanescent. Fresh preparations should be demanded. Particular caution is necessary against substitution of belladonna for stramonium. There are probably at present unknown alkaloids present in stramonium. The authors have been using U. S. P. standardized preparations, specifying a fresh preparation, in doses beginning in adults with 20 measured minims, three to four times daily, until an optimal dosage is reached, which is usually around 60 measured minims, four times daily, to get the best results. In a few cases sufficient tolerance has developed so that the dose has had to be increased after a few months. This has been progressive in these cases. Sixty minims has been increased to seventy, then to 80 and then to 90 minims. Sometimes the relief from tremor in parkinsonian syndromes is only slight when stramonium is used in spite of striking benefit to the rest of the symptom complex. In these cases it is well to add scopolamine to the medication. Their routine, after the optimal dose of stramonium is ascertained and tremor has not satisfactorily subsided, is to add scopolamine, $\frac{1}{150}$ grain, once or twice daily increasing first to $\frac{1}{120}$, then to $\frac{1}{100}$, later to $\frac{1}{75}$ and occasionally to $\frac{1}{60}$ grain once or twice daily until the maximal inhibition of tremor is attained or until toxic manifestations preclude large doses. Occasionally the larger doses given twice a day are necessary. Scopolamine, however, does not relax the muscular rigidity and other symptoms nearly as well as does stramonium. Toxic manifestations from stramonium have been noted. Nausea prevented one case of parkinsonism from continuing. Mydriasis is always present and troublesome for a time.

Unusual Addison's Syndromes.—In two cases reported by Brower, Addison's syndrome was related to agenesia and hypoplasia of the suprarenals in one case, and to pressure atrophy of the suprarenals produced by congenital polycystic kidneys in the other case.

Arch. of Physical Therapy, X-Ray, Radium, Chicago

11: 391-447 (Aug.) 1930

Resistance of Various Tissues for Various Electric Currents. A. Bachem, Chicago.—p. 391.

Important Facts Concerning Diathermy Machine and Its Current. W. Stenstrom, Minneapolis.—p. 395.

Development and Effect of Deep-Seated Heat in Female Pelvis. G. D. Royston, F. H. Ewerhardt, M. A. Roblee and F. B. Zener, St. Louis.—p. 410.

Further Studies in Problems of Obesity. M. Kern, Chicago.—p. 418.

Colorado Medicine, Denver

27: 275-318 (Aug.) 1930

Peace and Epilepsy. C. S. Bluemel, Denver.—p. 277.
Congenital Clubfoot: Treatment. R. G. Packard and H. I. Barnard, Denver.—p. 281.
*Intravenous Injection of Sodium Chloride Solutions. P. R. Farrington, Boulder.—p. 287.
Natural Periods of Reproductive Cycle in All Placental Mammals Including Man. T. M. Burns, Denver.—p. 290.
Exploration and Certain Operations on Female Pelvis Through Cholecystectomy Incision. C. E. Tennant, Denver.—p. 295.
Acute Anterior Poliomyelitis: Infantile Paralysis. B. B. Jaffa, Denver.—p. 297.

Intravenous Injection of Sodium Chloride Solutions.—Farrington calls attention to the fact that edema and albuminuria may be produced by the intensive administration of sodium chloride solutions intravenously. The benefit derived from the use of physiologic solution of sodium chloride in relieving toxemia is as great as that obtained from the use of hypertonic saline solutions, provided a sufficient volume is given. Physiologic saline solutions are less apt to cause a reaction, or a thrombosis, and are of greater value in dehydration. Hypertonic solutions of sodium chloride should be used when it is necessary to administer large amounts of salt in the preoperative preparation of emergency cases. Isotonic solutions of dextrose should be used in the treatment of dehydration and toxemia when there is evidence of excessive tissue or blood chloride.

Endocrinology, Los Angeles

14: 145-208 (May-June) 1930

Endocrinology and Neurology. P. Bassoe, Chicago.—p. 145.
Action of Pituitrin, Pitressin and Pitocin on Blood Phosphatides. W. Raab, Boston.—p. 150.
Physiologic Properties of Growth-Promoting Extracts of Anterior Hypophysis. H. M. Teel and H. Cushing, Boston.—p. 157.
Does Zondek Pituitary Hormone Influence Growth of Body? P. V. Botchkareff and A. P. Preobrajensky, Moscow.—p. 164.
*Effect of Intraperitoneal Injection of Potassium Iodide on Proliferative Activity of Thyroid Gland in Rats. K. S. Chouke, Denver.—p. 169.
Results of Oral Administration of Amniotin to Monkeys. J. A. Morrell, H. H. Powers, J. R. Varley and J. de Frates, New Brunswick, N. J.—p. 174.

Effect of Intraperitoneal Injection of Potassium Iodide on Proliferative Activity of Thyroid Gland in Rats.—Chouke asserts that the intraperitoneal injection in daily doses of 0.005 Gm. and 0.025 Gm. of potassium iodide in rats for periods of ten, fifteen, twenty and thirty days does not cause any appreciable change in the proliferative activity of the thyroid gland, nor does it produce any noticeable change in the structure or character of the colloid of this organ. The average number of mitoses in the normal thyroid gland of rats is slightly lower than in guinea-pigs. The effect of administration of potassium iodide in the rat is therefore different from that observed in the guinea-pig. There is some indication that, in general, the thyroid gland of the rat is less responsive than the thyroid gland of the guinea-pig to various kinds of stimulation.

Indiana State M. Assn. Journal, Fort Wayne

23: 349-394 (Aug. 15) 1930

Static Defects of Feet. A. Ellison, South Bend.—p. 349.
Comparison of Tuberculin Skin Reactions. B. K. Rust, Indianapolis.—p. 354.
Management of Acute Intestinal Obstruction. J. W. Emhardt, Indianapolis.—p. 356.
Coronary Sclerosis Versus Accidental Injury in Sudden Death: Case. W. D. Inlow, Shelbyville.—p. 362.
Better Business Methods. A. G. W. Childs, Madison.—p. 366.
Irritable Bladder in Women. J. W. Visher, Evansville.—p. 368.

Iowa State M. Soc. Journal, Des Moines

20: 347-394 (Aug.) 1930

Internist's Responsibility for Fruitless Laparotomy. O. H. P. Pepper, Philadelphia.—p. 347.
Diagnosis of Some of More Common Lesions of Upper Abdomen. J. T. Strawn, Des Moines.—p. 353.
Clinical Significance of Roentgen Signs of Common Lesions of Upper Abdomen. A. W. Erskine, Cedar Rapids.—p. 356.
Surgical Procedures in Some of More Common Lesions of Upper Abdomen. C. M. Wray, Iowa Falls.—p. 358.
Heart in Thyroid Disease. J. W. Thornton, Waterloo.—p. 364.
Bladder Neck Obstruction. G. V. Caughlan, Council Bluffs.—p. 369.
Results of Applied Health Work Among Selected Native Populations. M. E. Barnes, Iowa City.—p. 374.
Neoplasms of Envelopes of Nervous System. C. F. Obermann, Iowa City.—p. 376.

Johns Hopkins Hospital Bull., Baltimore

47: 61-122 (Aug.) 1930

Response of Plasma Water and Electrolytes to Elevation of Body Temperature. R. McIntosh, L. Kajdi and D. Meeker, Baltimore.—p. 61.
Response of Blood Guanidine Base Concentration in Normal Individuals and in Patients with Liver Injury to Ingestion of Methyl Guanidine Sulphate. R. M. Ellsworth, Baltimore.—p. 106.
*Disappearance of Diabetes Mellitus During Development of Cirrhosis of Liver. J. Bordley III, Baltimore.—p. 113.

Disappearance of Diabetes Mellitus During Development of Cirrhosis of Liver.—A case is reported by Bordley in which a severe and long-standing diabetes mellitus cleared up as portal cirrhosis of the liver developed. Attention is called to several similar cases reported in the literature. Cases of this nature are apparently rare and the experience of others has shown that portal cirrhosis of the liver does not usually exert such an ameliorating effect on diabetes mellitus.

Journal of Lab. & Clin. Medicine, St. Louis

15: 1055-1176 (Aug.) 1930

Present Status of Problem of Arthritis. R. Pemberton, Philadelphia.—p. 1055.
Recent Studies of Rheumatism, with Special Reference to Gonorrheal Arthritis. R. A. Kinsella, St. Louis.—p. 1062.
*Differential Diagnosis of Rheumatoid and Ostearthritis: Sedimentation Reaction and Its Value. M. H. Dawson, R. H. P. Sia and R. H. Boots, New York.—p. 1065.
*Specific Vaccine Treatment of Chronic Arthritis and Rheumatism. H. W. Crowe, London.—p. 1072.
*Biologic Products of Streptococcus Cardioarthritidis and Latest Developments in Technic of Their Therapeutic Applications. J. C. Small, Philadelphia.—p. 1093.
*Aliergic Joint. J. A. Freiberg and S. E. Dorst, Cincinnati.—p. 1109.
Microphotographic Study of Five Varieties of Arthritic Streptococci. D. Thomson and R. Thomson, London.—p. 1117.
Recent Researches on Streptococcal Etiology of Rheumatic Fever. D. Thomson and N. G. Hill, London.—p. 1124.
Nutritional Factor in Chronic Arthritis. A. A. Fletcher, Toronto.—p. 1140.
Traumatic Arthritis and Mechanical Factors in Hypertrophic Arthritis. J. A. Key, St. Louis.—p. 1145.
British Red Cross Society's Clinic for Rheumatism. A. R. Neligan, London, England.—p. 1161.

Differential Diagnosis of Rheumatoid and Osteearthritis: Sedimentation Reaction and Its Value.—The distinct clinical value of the determination of the sedimentation rate of the erythrocytes is emphasized by Dawson et al. in the differential diagnosis of rheumatoid and ostearthritis. However, the test should never be relied on as the sole criterion in the differential diagnosis of the two conditions. This differentiation can usually be made on clinical grounds alone. The determination of the sedimentation time of the red blood cells usually confirms the diagnosis and contributes information of considerable prognostic value in the clinical study of the disease.

Specific Vaccine Treatment of Chronic Arthritis and Rheumatism.—Crowe has used vaccines in the treatment of several thousand cases with steadily improving results. He says that vaccine treatment should not be used only as a last resort in advanced arthritis and rheumatism, where crippling deformities may prevent complete functional cure, but that the method should also be adopted in early cases, in which it is almost invariably successful.

Biologic Products of Streptococcus Cardioarthritidis.—The possibilities of an aqueous extract of *Streptococcus cardioarthritidis* in the treatment of rheumatic fever, as well as chronic atrophic and hypertrophic arthritis, are discussed by Small. In its use the importance of regulating dosage so as to avoid focal and general reactions is emphasized. The present development of the author's technic and its application is recorded. These products and the methods of their therapeutic application are to be regarded as in the developmental stages, so that further modifications are to be expected. A special technic is necessary in the use of the antiserum of *Streptococcus cardioarthritidis* in the treatment of rheumatic fever in order to avoid the undesirable "focal reaction" following serum administration. This technic is presented in detail.

Allergic Joint.—Freiberg and Dorst believe that they have demonstrated the experimental production of an allergic lesion in the joints of rabbits. In cases of joint disease in the human being, they encountered a lesion similar to those produced in

rabbits. They are not satisfied that any previous explanation of this type of joint lesion in human beings is adequate. They believe that this lesion in the human being is also allergic and that they have demonstrated the relationship between antigenic substances from distant foci and the diseased joint. The success of treatment, which consists, essentially, in desensitizing patients to autogenous antigens which give positive reactions, seems to justfy this conception.

Kentucky Medical Journal, Bowling Green

28: 361-406 (Aug.) 1930

Schilling's Differential Blood Count. J. D. Allen, Louisville.—p. 363.
History and Reason for Organization of Joint Hospital Committee. J. G. Sherrill, Louisville.—p. 367.
What Has Been Accomplished by the Joint Hospital Committee. S. C. Frankel, Louisville.—p. 368.
What is Hoped to Be Accomplished by Joint Hospital Committee in Future. W. A. Jenkins, Louisville.—p. 370.
Influenzal Pneumonia Treated with Convalescent Serum. M. Flexner, Louisville.—p. 371.
Present Treatment of Tuberculous Joint Disease. W. B. Owen, Louisville.—p. 372.
Modern Methods in Treatment of Pulmonary Tuberculosis. O. O. Miller, Louisville.—p. 376.
Primary Melanosarcoma of Meninges: Case. J. J. Moren, Louisville. —p. 382.
Indications for Cesarean Section. A. N. Pickett, Louisville.—p. 385.
Hoarseness in Children. L. Jacobs, Covington.—p. 389.
Two Unusual Cases of Tularemia. W. J. Young, Louisville.—p. 391.
Clinical Recognition and Importance of Cardiac Arrythmias. H. H. Shook, Cincinnati.—p. 393.
Etiology and Prophylaxis of Abortion. W. T. McConnell, Louisville.—p. 397.
Abortion. G. E. Gaupin, Louisville.—p. 399.

Laryngoscope, St. Louis

40: 549-626 (Aug.) 1930

Color Movies of Vocal Cord Action—Aid in Diagnosis. G. O. Russell and C. H. Tuttle, Columbus, Ohio.—p. 549.
New Operation for Chronic Purulent Mastoiditis. J. M. Smith, New York.—p. 553.
Rare Labyrinthian Disturbances. I. Sommer, Vienna, and L. Savitt, Chicago.—p. 558.
Recurrent Mastoiditis: Case of Bacillus Mucosus-Capsulatus Infection. H. S. Muckleston, Los Angeles.—p. 562.
Chronic Suppurative Otitis Media Associated with Tuberculous Meningitis Presenting Localized Intracranial Symptoms. M. S. Ersner, Philadelphia.—p. 569.
Plasmocytoma of Nasal Cavity. H. Rosenwasser, New York.—p. 576.
Chronic Abscess of Pharyngomaxillary Fossa without Symptoms: Case. I. F. Weidlein, Cleveland.—p. 583.
Dermoid Tumor of Posterior Pharyngeal Wall in Child Ten Months Old. A. O. Freedman, Montreal.—p. 589.
Observations on Agranulocytosis. N. Rosenthal, New York.—p. 592.
Complications of Tonsillectomy. W. Hartz, Philadelphia.—p. 598.
Unusual Laryngologic Conditions. G. B. New, Rochester, Minn.—p. 606.
Misleading Blood Wassermann Reactions. V. K. Hart, Charlotte, N. C. —p. 611.
Sinus Disease and Chronic Cough. J. V. Cassady, South Bend, Ind. —p. 615.

Medical Journal & Record, New York

132: 157-208 (Aug. 20) 1930

Beneficial Effects of Bathing. G. Hinsdale, Hot Springs, Va.—p. 157.
Vaccines: Their Use in Control and Cure of Disease. R. O. Clock, Pearl River, N. Y.—p. 163.
Child in Cardiorheumatic Mêlée. J. Epstein, New York.—p. 166.
Spinal Anesthesia. R. B. Hammond, White Plains, N. Y.—p. 168.
Diagnostics of Penile Lesions. F. A. Diasio, New York.—p. 170. C'cn.
Surgical Management of Tubo-Ovarian Infection. H. Pike, New York. —p. 173.
Diagnosis and Treatment of Functional Colon Disorders. S. M. Jordan and E. D. Kiefer, Boston.—p. 175.
Pathologic Appendix. A. F. R. Andresen, New York.—p. 178.
Hernial Appendicitis: Case. L. S. Auster, New York.—p. 180.
Putrefactive Intestinal Toxemia. W. E. Fitch, Bedford, Pa.—p. 183.
Is Pyloric Obstruction in Peptic Ulcer Always an Indication for Surgery? R. A. Rafsky, New York.—p. 187.

Michigan State M. Soc. Journal, Grand Rapids

29: 545-626 (Aug.) 1930

*Angina Pectoris Including Coronary Thrombosis. W. J. Wilson, Detroit.—p. 545.
*Aspects of Management of Coronary Thrombosis and Complications. C. L. Brown, Ann Arbor.—p. 551.
Rôle of Rhinolaryngology in Treatment of Bronchial Asthma. E. L. Whitney, Detroit.—p. 555.
Tuberculosis in Childhood. M. D. Jacoby, Detroit.—p. 558.
*Hormone Influence in Rickets. M. B. Kay, I. G. Macy and C. F. Shokers, Detroit.—p. 561.
Subarachnoid Anesthesia. C. A. Teifer, Muskegon.—p. 564.
Causes of Failure of Pollen Treatment for Hay-Fever. G. L. Waldbott, Detroit.—p. 567.
Observations on Anesthesia in Obstetrics. H. A. Furlong, Pontiac. —p. 569.
*Treatment of Hay-Fever by Anterior Ethmoidal Injection. H. Byrd, Detroit.—p. 573.
Problems of Industrial Medicine. C. S. Gorsline, Battle Creek.—p. 576.
Michigan's Department of Health. C. C. Slemons, Lansing.—p. 578.

Angina Pectoris Including Coronary Thrombosis.—Ninety-three cases are analyzed by Wilson. Aortic enlargement was present in 31 cases. As far as etiology is concerned, infection seems to play an important rôle. To syphilis has been attributed too much significance in this connection. There were only 5 positive Wassermann reactions out of 44 tests that were made. The average pulse rate in the series was 82. Irregularity of the heart was not common, only 9 cases of premature systoles and 2 cases of auricular fibrillation being noted. In the series of cases, those presenting substernal pain alone numbered 21; substernal and down the left arm only, 43; substernal and down the right arm alone, 2; substernal and down both arms, 26; substernal and radiating to the neck, 7; epigastric, 6; nocturnal attacks, 8. Electrocardiograms were made in 57 cases of this series. The chief abnormality is a negative T-wave, which was present in 32 cases; in lead I alone in 8 cases; in II only in 3 cases; in III alone in 12 cases; in leads I and II in 4 cases; in leads II and III in one case; in leads I and III in 4 cases; in lead I in 1 case, and in all leads in 1 case. There was a cove-shaped T-wave in 12 cases. The urinary observations in this group were unimportant. In the blood-nitrogen tests made, no marked changes were found.

Management of Coronary Thrombosis and Complications.—Brown says that during the acute attack two important features are observed: the terrific painful discomfort and the state of shock. How is the pain to be relieved? This is one condition in which very large doses of morphine are justified. The initial dose may be one-half grain (0.03 Gm.). The morphine not only aids in relieving the pain but also helps to produce mental and bodily rest. Glyceryl trinitrate may be tried but should not be used if the systolic blood pressure is 100 mm. or lower. Very occasionally light ether anesthesia may be justified to relieve the pain. Shock in coronary thrombosis is to be managed much the same as when found in other conditions, except that stimulation is to be avoided if the peripheral blood pressure is sufficient to maintain adequate circulation. A systolic blood pressure of 100 mm. of mercury is usually taken as a criterion of sufficiency. If the pulse is imperceptible, caffeine sodiobenzoate, from 0.5 to 1 Gm., may be given intravenously; or strophanthin, 1 mg., intravenously; or epinephrine, 0.5 cc., intramuscularly may be used. In general, intravenous therapy, such as fluids in large amounts, is to be avoided as a greatly increased volume of fluid injected directly into the blood stream may embarrass the circulation still further. The body should be kept warm by blankets, hot-water bottles, or other forms of local application. An important caution is to do nothing that will cause the patient any muscular exertion. The physician should refrain from elaborate examination, and visitors are to be restricted. After the patient has passed through the attack of pain and is fairly comfortable, absolute bed rest still is imperative. He should remain as quiet as possible for several days. The continued use of morphine may be justified for several days; however, in many instances the common sedatives, such as bromide or phenobarbital may suffice. He should be spared the effort of feeding himself for the period of three days to one week. He should not have to use the bed pan more than once daily; slight constipation is a desirable occurrence during the first few days. The patient should remain at rest in bed for at least one month, and preferably for from six to eight weeks. Under no circumstances should he be allowed to get up before the end of one month. Rupture of the heart may happen up to the end of the second week or even later after the onset. During the period of recovery little in the way of treatment, other than that described, is necessary unless complications arise.

Hormone Influence in Rickets.—Kay et al. report that rachitic rats kept on a rachitogenic diet to which only thyroid gland has been added show healing by the line test. The dose

of thyroid for rats seems fairly well established. The "hormone" seems to have a curative effect in rickets.

Treatment of Hay-Fever by Anterior Ethmoidal Injection.—Byrd points out that, as compared with immunization methods, the injection of the anterior ethmoid nerves for hay-fever appears to have the following advantages: It is as applicable after the onset as before, it eliminates the allergic tests for the offending pollen, it involves little loss of time for the patient and much conservation of energy for the physician, it eliminates the unhappy reactions occasionally encountered in desensitization, it yields a larger percentage of positive results, and, finally, it is applicable to seasonal and nonseasonal types alike. The foregoing considerations would seem to make injection of the anterior ethmoidal nerves the procedure of choice in the treatment of hay-fever. It is perhaps the only procedure applicable with marked success to those cases of hay-fever in which desensitization fails, while well nigh the only procedure applicable with any considerable success to the other disorders mentioned under such terms as vasomotor rhinitis, hyperesthetic rhinitis and nasal hydrorrhea.

New England Journal of Medicine, Boston

203: 341-390 (Aug. 21) 1930

Forceps, Version or Cesarean Section? F. L. Good, Boston.—p. 341.
Useful Office Procedures in Gynecologic Therapy. W. T. Dannreuther, New York.—p. 351.
Observations on Present Status of Low Cervical Cesarean Section. C. W. Sewall, Boston.—p. 356.
Observations in Toxemic Clinic, Boston Lying-In Hospital, 1923-1930. S. Berman, Boston.—p. 361.
Closed Pneumolysis, or Jacobeus Unverricht Operation as Aid in Artificial Pneumothorax. J. B. Hawes 2d and Moses J. Stone, Boston. —p. 366.
Slipshod Surgical Diagnosis. H. G. Wetherill, Monterey, Calif.—p. 367.

203: 391-440 (Aug. 28) 1930

*Acute Empyema. E. A. Locke, Boston.—p. 391.
*Abnormal Labor as Etiologic Factor in Mental Deficiency and Other Associated Conditions. N. A. Dayton, Boston.—p. 398.
Diphtheria Prevention in Lowell, 1928 and 1929. J. J. McNamara and G. M. Sullivan, Lowell, Mass.—p. 413.
Diagnosing Pulmonary Tuberculosis as Another Condition. L. R. Williams and A. M. Hill, New York.—p. 418.
Psittacosis: Four Cases. H. E. Wellman, Providence, R. I.—p. 421.
Nitrobenzene Poisoning; Sodium Fluoride Poisoning. W. W. Fullerton, Brockton, Mass.—p. 423.
Progress in Psychiatry. I. H. Coriat, Boston.—p. 424.

Acute Empyema.—Locke has studied 478 cases to determine any relation that may exist between the type organism and the nature and course of the disease. The overwhelming majority of cases were secondary to pneumonia. The organisms most commonly found in the pleural exudate in empyema are the pneumococcus, *Streptococcus hemolyticus,* nonhemolytic streptococcus and *Staphylococcus aureus.* The general incidence of the pneumococcus and hemolytic streptococcus in the entire group of empyemas is 58 and 18.4 per cent, respectively, or 76.4 per cent if combined. Among the 417 cases with known bacteriology, 89.4 per cent were due to these two organisms. The incidence of the nonhemolytic streptococcus is 3.9 per cent, the staphylococcus 5.2 per cent, mixed infection and unknown 6.6 per cent and pus sterile 7.9 per cent. The overwhelming importance of the pneumococcus type I infection is evident from the fact that it constitutes 48.4 per cent of the total 417 cases of known bacteriology and 73 per cent of the 277 cases of pneumococcus infection. Types II, III and IV show an incidence in the whole series of 5.2, 2.7 and 7.9 per cent, respectively, indicating an insignificant position etiologically and in this respect comparable to the staphylococcus and the nonhemolytic streptococcus. The relation between age and the incidence of empyema is an important one. One third of all cases occurred in children under 10 years of age and 76 per cent in individuals under 40. Pneumococcus type I is the organism of the young, as in pneumonia. The average age of all patients with type I infection was 19. Type III, on the other hand, is the organism of older people, the average age in all typical cases being 45 years. Type II occurs in individuals of average age midway between types I and III; namely, 38 years. the type IV series shows an average age of 28 years. Blood cultures were made in 185 cases and found positive in one third. In general, bacteremia seems to be of much less prognostic significance in empyema than in pneumonia. The mortality was twice as great in the positive cases as in the negative, but even then only slightly above the death rate for all empyemas. There is no evidence that cases of empyema die of septicemia. Complications are common in empyema (265 in 478 cases) and are chiefly focal infections. Type I pneumococcus infections are especially prone to complications. The death rate with respect to the various organisms found in the empyema fluid is as follows: pneumococcus type I, 11.3 per cent; type II, 36 per cent; type III, 38.5 per cent; type IV, 29.7 per cent; all forms of pneumococci, 17.5 per cent; hemolytic streptococcus, 34 per cent; nonhemolytic streptococcus, 5.2 per cent; staphylococcus, 20.7 per cent; and finally for the total of 478 cases, 23 per cent. The death rate in the group of 416 cases treated by permanent drainage is as follows: pneumococcus type I, 9.8 per cent; pneumococcus type II, 21.0 per cent; type III, 20 per cent; type IV, 22.6 per cent; undetermined, 14.3 per cent; hemolytic streptococcus, 23.7 per cent; nonhemolytic streptococcus, 0.0 per cent; *Staphylococcus aureus,* 13.0 per cent, undetermined, 29.3 per cent; and finally for the total of 416 cases, 15.9 per cent. Age seems to play an important part in the mortality of empyema. In infancy the death rate is high, falling abruptly after the fifth year, but after this period the older the age groups, the higher the death rate. This increase in death rate with each decade is, however, considerably less striking and constant than in pneumonia.

Abnormal Labor as Etiologic Factor in Mental Deficiency.—Dayton outlines the Massachusetts system for the psychiatric examination of retarded school children, which has been in operation since 1915. A total of 43,975 examinations has been completed by fifteen of these traveling psychiatric school clinics. The Fernald ten-point scale examination is used. A total of 20,473 consecutive first examinations completed by six of the traveling clinics has been studied with the purpose of determining whether there is a relationship between abnormal labor conditions and various characteristics of the child. The study reveals that abnormal labor is in association with various mental, physical and emotional characteristics of retarded school children, apparently irrespective of the intelligence of the children involved. Whatever effect birth trauma may have on the various factors studied, it appears to exert this influence impartially on the two groups, whether mentally defective or not mentally defective. The results render imperative immediate study of the demonstrated association between abnormal labor and children in the higher intelligence groupings; that is, those in the dull normal or low normal classifications. They also point out the great need for additional study of the newly demonstrated relationships between abnormal labor and physical and emotional factors. These may prove to be of more vital importance than the association between abnormal labor and certain grades of intelligence.

New Jersey Medical Society Journal, Orange

27: 651-702 (Aug.) 1930

Cancer Problems Which Demand Immediate Attention of Medical Profession. J. C. Bloodgood, Baltimore.—p. 651.
Hodgkin's Disease with Subcutaneous Nodules. M. Vinciguerra, Elizabeth.—p. 655.
Partial Gastrectomy in Cancer of Stomach: Case. J. S. Reitnauer, Hoboken.—p. 657.
Hypocalcemia with Lowered Basal Metabolism and Tendency to Bleeding: Case. H. I. Goldstein, Camden.—p. 660.
Tuberculosis and Pregnancy. I. Willner, Newark.—p. 662.
Outline: Tuberculosis (Pulmonary). M. W. Curran, Chatsworth.—p. 664.
Effects of Exercise on Circulation and Respiration. B. Gordon, Philadelphia.—p. 672.
Ophthalmologic Pictures and Significance. E. B. Miller, Philadelphia. —p. 674.
Problems of Medical Charity. L. Emerson, Orange.—p. 676.

New York State Journal of Medicine, New York

30: 887-950 (Aug. 1) 1930

Copper Ionization in Treatment of Cervicitis. D. W. Tovey, New York. —p. 887.
Differential Diagnosis of Glycosurias. B. D. Bowen, Buffalo.—p. 890.
Eye as Indicator of Systemic Diseases. L. L. Albert, Yonkers.—p. 897.
Ocular Tuberculosis Still Comparatively Uncommon Diagnosis in Clinical Ophthalmology. M. L. Lerner, Rochester.—p. 899.
Malignancy of Tongue on Syphilitic Base. J. A. MacGregor, New York. —p. 907.
Device to Control Fecal Incontinence. A. A. Landsman, New York. —p. 909.
Hay-Fever: Diagnosis. A. A. Thommen, New York.—p. 911.
Low Voltage Roentgen-Ray for Therapeutic Menopause. J. C. Potter, Rochester.—p. 915.

Physical Therapeutics, New York

48: 337-384 (July) 1930

Hyperpiesis and Hypertension. B. B. Grover, Colorado Springs, Colo. —p. 337.

Roentgen and Radium Treatment of Toxic Goiter and Hyperthyroidism. J. T. Stevens, Montclair, N. J.—p. 343.

Choice of Physical Measures in Treatment of Some Ear, Nose and Throat Conditions. C. R. Brooke, Newark, N. J.—p. 351.

Physical Therapeutic Treatment of Subacromial Bursitis. G. E. Deering, Worcester, Mass.—p. 362.

Value of Electrical Testing in Nerve Injury. E. P. Cumberbatch, London, Eng.—p. 367.

Southwestern Medicine, Phoenix, Ariz.

14: 361-404 (Aug.) 1930

Organic Internal Splinting of Fractured or Detached Olecranon. W. L. Bell, Oakland, Calif.—p. 361.

Management of Pneumothorax Patient. C. S. Kibler and S. H. Watson, Tucson, Ariz.—p. 362.

Tuberculosis of Bowel from Standpoint of Roentgenologist. J. L. McKnight, Tucson, Ariz.—p. 365.

Volkmann's Ischemic Contracture: Presentation of Case with Moving Pictures. A. C. Carlson, Jerome, Ariz.—p. 367.

Fever. H. A. Reese, Yuma, Ariz.—p. 369.

Some Epidemiologic Studies. O. C. West, Phoenix, Ariz.—p. 370.

Goiter. S. I. Bloomhardt, Phoenix, Ariz.—p. 372.

Malignant Tumors of Thyroid, with Report of Case. E. P. Palmer, Phoenix, Ariz.—p. 376.

Report of Case of Mitral Stenosis with Unusual Clinical Manifestations. J. E. Morrison, El Paso, Texas.—p. 378.

Surgery, Gynecology & Obstetrics, Chicago

51: 145-288 (Aug.) 1930

Osteochondritis of Growth Centers. M. Harbin and R. Zollinger, Cleveland.—p. 145.

Cystic Dermoid Tumor of Spinal Cord. J. Fraser, Edinburgh, Scotland.—p. 162.

Varicose Veins and Treatment by Injection Method. R. W. Stuebner, St. Louis.—p. 169.

*Acute Pancreatitis. E. L. Eliason and J. P. North, Philadelphia.—p. 183.

*Obstetric Analgesia. J. T. Gwathmey, New York.—p. 190.

Hemorrhage and Shock in Traumatized Limbs. E. Parsons and D. B. Phemister, Chicago.—p. 196.

Influence of Transverse Upper Abdominal Incision on Incidence of Postoperative Pulmonary Complications. D. F. Jones, Boston and W. L. McClure, Yakima, Wash.—p. 208.

Renal Resection: Experimental Study of Postoperative Function. R. H. Herbst and H. J. Polkey, Chicago.—p. 213.

*Useful Semianesthesia from Luminal. W. Bartlett and W. Bartlett, Jr., St. Louis.—p. 217.

Uranostaphylorrhaphy. G. Gatti, Florence, Italy.—p. 224.

Surgical Management of Pharyngo-Esophageal Diverticulum. F. H. Lahey, Boston.—p. 227.

Significance of Renal Counterbalance in Renal Surgery. F. Hinman, San Francisco.—p. 237.

Carcinoma and Tuberculosis of Stomach. D. H. Sprunt, New Haven, Conn.—p. 245.

*Congenital Dislocation of Hip. R. Soutter, Boston.—p. 249.

Mechanical and Anatomic Principles of Operations for Drop Foot. L. C. Snow, Salt Lake City.—p. 252.

Hernia of Ovary and Fallopian Tube: Twenty-Five Cases. C. P. G. Wakeley, London, England.—p. 256.

Rupture of Spleen: Twenty-Seven Cases. L. Dretzka, Detroit.—p. 258.

Acute Pancreatitis.—According to Eliason and North, acute pancreatitis is not an extreme rarity and is entitled to more serious consideration than is customarily accorded it. The etiology is not understood, although considerable experimental data have accumulated. Cholecystitis is certainly a prominent factor. The correct diagnosis was made before operation in not more than one third of the cases reported in the literature. The character of the pain and the appearance of cyanosis are the most distinctive of the diagnostic criteria. The mortality in all the collected cases is 51 per cent. The accepted mode of treatment by emergency laparotomy may not be the best one. Experience favors dealing with these cases as one would with an uncomplicated acute cholecystitis or an acute salpingitis; namely, deferring the operation until after the acute phase, unless an occasion arises demanding immediate surgical intervention. A train of distinctive complications, for the most part incident to operative intervention, increases the hazard of early operation.

Obstetric Analgesia.—The formula used in more than 20,000 cases of obstetrics according to Gwathmey consists of: quinine alkaloid, 20 grains; alcohol, 40 minims; ether, 2½ ounces; liquid petrolatum or olive oil, sufficient to make 4 ounces. The final technic involves (1) three intramuscular injections of magnesium sulphate, each of 2 cc. of a 50 per cent solution; (2) an injection of morphine sulphate, ¼ grain, given with the first injection of magnesium sulphate only; (3) a rectal instillation of the foregoing formula. The medication varies in its results from a slight sedative effect to analgesia with unconsciousness, and amnesia. The progress of labor is not delayed. Occipitoposterior positions rotate in about the same proportion as in normal labor. Postpartum hemorrhage is less than with any inhalation method. If anything, the use of forceps is decreased, and the baby, as a rule, is born crying. Morbidity of the mother is decreased, and no fetal deaths attributable to the analgesia have occurred. Certain patients do well with the intramuscular injections of magnesium sulphate alone, or with the rectal instillation alone, but the best results are obtained when the full technic is used. When the patients come in with the cervix four fingers dilated, they are relieved considerably of pain with the intramuscular injections of magnesium sulphate, with or without morphine. There need be no fear in using the technic in cases of contracted pelvis or disproportion between baby and pelvis when a trial labor is indicated, for many will deliver normally. If they do not deliver, they have a great deal more reserve strength with which to withstand a hard forceps delivery or cesarean section. Patients who go through labor with the synergists have less postpartum fatigue and consequently less morbidity. They feel better and insist on getting out of bed early.

Useful Semianesthesia from Phenobarbital.—A surgical anesthesia produced by phenobarbital and nitrous oxide gas (at times ethylene) has impressed the Bartletts with certain definite advantages. There are no harmful preoperative anticipations. During the operation a surprisingly small quantity and concentration of gas has been required for complete satisfaction; consequently, cyanosis and bleeding are diminished, while hemostasis assumes a new and unwonted facility. After operation, one sees practically no sweating and comparatively rarely any nausea. The postoperative administration of fluids by mouth has in consequence largely supplanted the hypodermic and intravenous methods. There is, too, a welcome postoperative oblivion of many hours' duration (fifty-six hours in one instance). It is unusual for the patient to recall any incident from the day of operation. Phenobarbital alone makes the ideal preparatory drug in doses of from 12 to 30 grains (0.8 to 2 Gm.), given three hours before operation; it is rarely vomited; and no "supplementary" is needed as a rule. The dose, from 12 to 30 grains, has not harmed any adult, while 30 grains controlled perfectly the wildest toxic thyroid patient imaginable, who had entered the hospital only ten days before operation, with a basal metabolism rate of + 122.

Congenital Dislocation of Hip.—Soutter describes his operation as follows: An incision is made from the anterior superior spine of the ilium to 2 cm. below the top of the trochanter and then backward and upward. The soft parts are reflected upward, thus exposing the capsule of the joint; a slot is made through the outer and inner table of the ilium just above the head of the femur and extending some distance posteriorly and anteriorly. This slot is cut with an osteotome and is made sufficiently broad and long to hold a good size piece of bone. A square is cut from the outer table of the ilium above this and separated from the ilium at its lower edge and at its sides, while the upper edge remains in contact with the ilium. A graft is taken from a portion of the trochanter and the adjoining neck and shaft of the femur posteriorly (or anteriorly) and cut thick and large enough to cover a wide space above the head of the femur. This method of securing the graft simplifies the operation and eliminates the necessity of making a separate incision to obtain the graft. The graft is driven into the ilium. The square piece of bone, which was cut from the outer table of the ilium above the acetabulum, is lowered and remains in contact with the ilium at its upper edge. Its lower edge is fastened to the outer edge of the femoral graft with one catgut suture. The soft tissues hold this in place as they are firmly sutured over it. Its upper edge may be shortened in the middle, making this piece of bone longer at the sides than in the middle. These longer sides can be fitted into slots in the ilium, if necessary.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

2: 169-200 (Aug. 2) 1930

Acute Perforating Duodenal and Gastric Ulcers. J. H. Watson.—p. 169.
Two Apparently Unrelated Outbreaks of Bacillary Dysentery. A. T. W. Powell.—p. 173.
*Diagnosis of Brain Abscess. H. V. O'Shea.—p. 175.
*Treatment of Bone Tuberculosis by Large Amounts of Vitamins A and D. C. L. Pattison.—p. 178.
Treatment of Acute Puerperal Inversion. N. Hypher.—p. 179.
Perforation of Silent Duodenal Ulcer Coincident with Perforated Appendix. D. F. McCarthy.—p. 180.
Painless Hematuria. J. C. Ainsworth-Davis.—p. 181.
Two Unusual Cases of Intussusception. E. Lyles and F. Whitrow.—p. 181.
Series of Gastric Perforations. R. Reynolds.—p. 181.
Bilateral Ranula in the New-Born. A. H. Turner.—p. 182.

Diagnosis of Brain Abscess.—The case reported by O'Shea shows that an intracranial condition may coexist with chronic mastoid disease and cause few or no symptoms. The patient had chronic suppuration in a dense acellular mastoid with a minute antrum. Instead of draining, as it normally should, into the tympanic cavity and thence through a perforation in the drum (which it eventually did, but too late), it burrowed its way gradually through the tegmen and dura, forming adhesions in its course, into the temporal lobe, there forming a small chronic abscess. Ultimately, for some unknown reason, an acute otitis media arose, and the pus under pressure caused a perforation of the membrana tympani but spent most of its energy intracranially. Rupture of the abscess occurred, with subsequent meningitis. Nobody had ever heard the patient complain of ear trouble; it was said that she always seemed very healthy and enjoyed life. The appearance of the drum membrane on examination would seem to bear out this history.

Treatment of Bone Tuberculosis by Vitamins A and D.—Pattison used two preparations. One gave 150 blue with the antimony trichloride test, and has about twenty times the vitamin A potency of cod liver oil. It also contained 10,000 antirachitic units per cubic centimeter. The other had double the vitamin A content of preparation 1 (that is, 300 blue), but only 100 antirachitic units per cubic centimeter. Forty-three patients were given large doses of these preparations while thirty-five patients were given 10 cc. of cod liver oil daily. The latter were intended to act as controls and were selected because they had degrees of infection and bone invasion similar to certain patients in the other group of cases. The patients included in these tests were of varying ages—from 3 to 15 years—and in both groups there were cases with early disease, with acute rapidly progressing disease, with chronic slowly increasing disease, and with disease in which recalcification of bone was commencing. Of the forty-three patients, fifteen were given an average dose of 7.8 cc. of preparation 1 daily for an average period of 3.5 months, and were then given an average dose of 9.4 cc. of preparation 2 for a further average period of 3.4 months. The remaining twenty-eight patients were given an average dose of 9.6 cc. of preparation 2 for an average period of 4.1 months. The thirty-five control patients were given 10 cc. of cod liver oil daily during the period of investigation. All the patients, including the controls, got a fair supply of vitamin A and D, but those receiving the special vitamin preparations 1 and 2 had much more vitamin A than the others. Of the forty-three patients having the vitamin preparations, thirty-two were improved clinically and eleven were not; in twenty-five of these forty-three cases the roentgen rays showed arrest of disease or increased calcification, while in eighteen there was no evidence of such improvement. Of the thirty-five patients taking cod liver oil, twenty-five were clinically improved and ten were not. The roentgenograms of eighteen of these thirty-five indicated progress toward cure, while those of seventeen did not. Therefore, for the types of patients described, and with the dosages and under the other conditions mentioned, the use of preparations containing large amounts of vitamins A and D does not appear to be of more curative value than that of cod liver oil.

2: 201-236 (Aug. 9) 1930

Recent Advances in Physiology of Menstruation. D. J. Cannon.—p. 201.
*Subacute Combined Degeneration of Cord in Primary Anemia of Fowl: Its Pathogenesis and That of Associated Lesions. J. P. McGowan.—p. 204.
*Thoracic Stomachs: Study of Pharyngeal Pouch and Cardiospasm; Three Cases. A. W. Adams.—p. 208.
Bone Tumor from Ancient Egypt: Two Cases. R. A. Gardner and A. L. Urquhart.—p. 211.
*Spontaneous Subarachnoid Hemorrhage, with Korsakoff's Psychosis. A. W. Cubitt.—p. 212.
Ruptured Liver: Suture. G. H. Steele.—p. 213.
A Pathologic Monocyte. R. Craik.—p. 213.
Idiopathic Hemorrhage in the New-Born. J. M. Boyd and J. A. Elliot.—p. 213.

Combined Degeneration of Cord in Primary Anemia of Fowl: Its Pathogenesis and That of Associated Lesions.—In seven fowls, lesions of the cord, indistinguishable from those described as occurring in subacute combined degeneration of the cord in human beings, have been found by McGowan. In all the cases this has been associated with the existence of a high degree of hemosiderosis of the liver, spleen and kidney, and also of the mucosa of the duodenum, when this was examined. In three cases there was also marked sclerosis of the bones, with great diminution in the quantity and marked change in the appearance of the marrow. The marrow, when examined microscopically, has been found to be abnormal in all the cases. In some it showed atrophy or aplasia; in others, considerable diminution, accompanied by great increase and distention of the venous sinuses; while in others it showed a hemocytoblastic hypertrophy, such as one finds typically in active pernicious anemia of the fowl. In some of the cases there was comparatively little alteration in the circulating blood. In one case, however, there was considerable reduction in the hemoglobin percentage and number of red blood cells, while in others there was evidence of blood instability, as shown by the presence of erythroblasts. McGowan concludes that pernicious anemia is the involvement of the bone marrow in an irritative process which causes it to revert to embryonic cell formation. The resulting anoxemia causes, secondarily, the complications to be found in the central nervous system, the stomach and the liver (later stages). There is no evidence for the existence of a "pernicious anemia diathesis" in relation either to the disease as a whole or to the organ complications.

Thoracic Stomachs.—Theories are mentioned by Adams which encourage the belief that there is defective neuromuscular action at the esophageal exit, but whether this is inherited, brought on by the irritation of imprudent feeding, reflex from distant foci of disease, or the result of local neural degeneration, further research must prove. It is probable, he says, that a neuromuscular dysfunction at susceptible transition points in the gullet raises the pressure of ingesta. This effect expresses itself by different forms of dilatations. The inherent weakness in the posterior aspect of the hypopharynx produces a hernia of the mucosa. By contrast, in the epiphrenic region, the esophageal walls respond to the hypertension within by a typical uniform dilatation and hypertrophy. From such origins spring the substernal and epiphrenic stomachs. They are likely to continue to vex the human race, evoke the discernment of the physician, elude prophylaxis, and require most skilful surgery to relieve them. In pharyngeal pouch, two-stage diverticulectomy is the best remedy, while cardiospasm in the early stages will respond to mere dilation with bougies, which is best done with the aid of the radiographic screen. Where this fails, Mikulicz's digital dilation, by means of a gastrotomy, is necessary and effective. By reason of the comparative infrequency of these conditions, their deep situation and the vital structures around them, their treatment calls for special care and skill.

Spontaneous Subarachnoid Hemorrhage, with Korsakoff's Psychosis.—Cubitt cites the case of a man, aged 57, who had recurrent subarachnoid hemorrhages, and from each succeeding hemorrhage the recovery was less complete. He developed Korsakoff's psychosis, and finally died seven days after the first hemorrhage. The diagnosis was confirmed at necropsy. The sudden appearance of pupillary and pyramidal tract signs with each fresh hemorrhage, and their rapid disappearance after the relief of pressure by lumbar puncture, was an interesting feature of the case.

Glasgow Medical Journal

33: 49-96 (Aug.) 1930

Complications Arising from Nasal Sinusitis. J. Adam.—p. 49.
Present Position of Psychotherapy. D. Yellowlees.—p. 58.
*Short Study of Nephritis in Children. K. J. Guthrie.—p. 61.
Infective Diarrhea of Children, Glasgow, 1929. H. R. Hay.—p. 70.

Short Study of Nephritis in Children.—The glomerular type of nephritis preponderated in twenty-two of the thirty-six cases falling into this category reviewed by Guthrie. A striking feature of the acute glomerular lesions is the relatively slight degree of pathologic change demonstrable, death having taken place in some cases in which the only glomerular lesion present was acute congestion of the capillaries. It is also of interest that the majority of cases of glomerular nephritis gave no history of previous acute illness to which the inflammatory renal condition might be attributed. In the more chronic cases, naked-eye examination failed to give any indication of the degree of the histologic changes present. The cases with marked chronic tubular lesions were apparently from the histologic changes in the glomeruli, of an inflammatory, rather than of a degenerative, nature. From a general survey of these thirty-six cases of nephritis in children, it would appear that classification on naked-eye examination is more difficult than in adults, and that in most cases a definite diagnosis of the type of renal lesion present is not possible without microscopic examination.

Indian Journal Medical Research, Calcutta

18: 1-359 (July) 1930

Effect of Ether on Fixed Virus in Infected Brains of Sheep. K. R. K. Iyengar and W. A. Beer.—p. 1.
*Action of Opium and Narcotine in Malaria. R. N. Chopra and R. Knowles.—p. 5.
*Action of Opium in Diabetes. R. N. Chopra and J. P. Bose.—p. 15.
Physical Properties of Different Blood Sera: Filariasis. R. N. Chopra, S. G. Choudhury and S. Sunder Rao.—p. 27.
*Narcotine: Pharmacologic Action and Therapeutic Uses. R. N. Chopra, B. Mukherjee and B. B. Dikshit.—p. 35.
Distribution of Lathyrism in United Provinces and Cause: Description of 4¼ Months Feeding Experiment on Tonga Ponies with Botanically Pure Cultures of Lathyrus Sativus and Vicia Sativa. H. Stott.—p. 51.
Cryoscopy of Calcutta Milk. A. D. Stewart and N. L. Banerjea.—p. 57.
Electrical Conductivity of Bengal Waters. A. D. Stewart and N. K. Chatterjee.—p. 71.
Method of Locating Urease Within Tissues by Microchemical Method. P. B. Sen.—p. 79.
Disinfection and Sterilization: Chemical Constitution of Terpenes and Disinfecting Properties. P. K. De.—p. 83.
Id.: Composition of Essential Oils and Disinfecting Properties. V. Subrahmanyan.—p. 91.
Two Intestinal Protozoa of Indian Turtle. R. Knowles and B. M. Das Gupta.—p. 97.
Differentiation of Leishmania Tropica from Parasite of Dermal Leishmanoid. B. M. Das Gupta.—p. 105.
Use of Ammonium Molybdate in Kuttner and Cohen's Method of Micro-Estimation of Phosphates. S. Ranganathan.—p. 109.
Bacteriophage in Bacillary Dysentery and Cholera. J. Taylor, S. D. S. Greval and U. Thant.—p. 117.
*Pathology of Chronic Colitis in Tropics. T. Bhaskara Menon.—p. 137.
Agglutinogenetic Powers of Rough and Smooth Variants of B. Typhosus and Mutual Immunologic Relationship. S. M. K. Mallick and M. G. Coombes.—p. 143.
Dysenteries of Madras District. L. Dunbar and E. D. Stephens.—p. 149.
Female of Phlebotomus Nicnic Banks, 1919. J. A. Sinton.—p. 165.
New Species and Records of Phlebotomus from Africa. J. A. Sinton.—p. 171.
Indian Species of Genus Phlebotomus: Phlebotomus Maynei N. Sp. J. A. Sinton.—p. 195.
Field Method for Estimation of Salinity of Water in Mosquito-Breeding Places. J. A. Sinton and N. D. Kehar.—p. 199.
Aspects of Behavior of Cinchona Alkaloids Toward Living Cells. N. D. Kehar.—p. 203.
Morphology of Plasmodium Falciparum: Finding in Two Fatal Cases of Malaria. R. Row.—p. 221.
Interrelationship of Some of Important Endocrine Glands: Part They Play in Influencing Color and Texture of Skin. J. P. Bose.—p. 227.
Dextrose and Levulose Tolerance Curves in Various Conditions. T. A. Hughes and K. S. Malik.—p. 249.
Jungle in Relation to Malaria in Bengal. M. O. T. Iyengar.—p. 259.
Ultraviolet Absorption Spectra of Sera in Tropical Diseases: Kala-Azar. T. C. Boyd and B. K. Bose.—p. 267.
*Rôle of Urinary Colloids in Prevention of Stone Formation. C. Newcomb.—p. 275.
*Pernicious Anemia of Pregnancy: Survey of Dietetic and Hygienic Conditions of Women in Bombay. L. Wills and S. N. Talpade.—p. 283.
Id.: Determination of Normal Blood Standards for Nutritional Laboratory's Stock Albino Rat. L. Wills and M. M. Mehta.—p. 307.
Correlation Between Incidence of Filarial Infection in Human Host and in Insect Carrier in Relation to Terrain. V. T. Korke.—p. 319.
Characters of Filarial Endemic Areas in Bihar and Orissa. V. T. Korke.—p. 333.
Rat Fleas and Transmission of Plague. W. J. Webster and G. D. Chitre.—p. 337.
Blood Meal of Sandflies Investigated by Means of Precipitin Antisera. R. B. Lloyd and L. E. Napier.—p. 347.

Action of Opium and Narcotine in Malaria.—Experiments made by Chopra and Knowles failed to elicit any evidence to show that opium has any prophylactic or curative effect in malaria. The alkaloid narcotine even in such large doses as 10 to 15 grains (0.65 to 1 Gm.) daily had no effect on the parasites of any forms of malaria circulating in the peripheral blood. The temperature of the patient remained unaffected and rigors and paroxysms continued.

Action of Opium in Diabetes.—By the administration of small doses of opium, from 1 to 6 grains (0.065 to 0.4 Gm.) daily, Chopra and Bose effected a slight reduction in the total quantity of urine excreted in mild cases of diabetes. In severe cases it did not reduce polyuria, thirst or frequency of micturition. In the early and mild cases of diabetes, opium had a well marked effect in reducing the total daily output of sugar in the urine. In some cases the sugar entirely disappeared from the urine under its influence. In severe cases of diabetes, however, it had no effect on the sugar output. Opium had not much effect in reducing the amount of blood sugar of diabetic patients; in fact, in severe forms of the disease it actually increased it. In some patients the administration of opium distinctly raised the renal threshold for excretion of sugar. The sugar in the urine disappeared while that in the blood was increased. It would not, therefore, be advisable to use opium in this disease.

Pharmacologic Action and Therapeutic Uses of Narcotine.—Experimental evidence is produced by Chopra et al. in support of the view that narcotine, unlike morphine, stimulated the respiratory center in the medulla. The plain muscles of the bronchioles are relaxed. The drug, in animals at any rate, has a stronger action on the cord than on the brain. Narcotine has a depressant action on the algesic areas in the brain and therefore lessens such symptoms as headache, pain in the limbs, and discomfort, attendant on febrile conditions. It undoubtedly potentiates the action of morphine and codeine so that much smaller quantities of these alkaloids would be effective if given in combination with narcotine. The voluntary muscles are not affected. It is stated that the alkaloid could be employed in medicine for its synergistic effects on the sedative properties of morphine, codeine and diacetylmorphine. By iself it is beneficial in allaying cough, headache and other minor conditions producing pain of a milder type. On account of its depressant action on the involuntary muscle tissue it would be useful in such conditions as asthma, whooping cough, and spasm of muscular tubes such as the intestine, bile duct and urethra.

Pathology of Chronic Colitis in Tropics.—The different types of dysenteric lesions are described by Menon from a study of material and records from 800 necropsies. He asserts that about 60 per cent of fatal cases of "chronic" colitis or "chronic diarrhea" of indefinite origin show morphologically strong resemblance to the lesions of chronic dysentery. Some cases show an atrophied state of all the coats of the large and small intestine, the exact cause of which has not been determined.

Rôle of Urinary Colloids in Prevention of Stone Formation.—Against the arguments for the theory that the urinary colloids are the mechanism by which certain difficultly soluble constituents of the urine are prevented from precipitating, the experiments made by Newcomb have shown that other colloids (starch, gelatin, serum, albumin and milk) have no effect on the solubility of such constituents (uric acid, oxalates and phosphates) in an artificial mixture of salts resembling urine. On the dialysis of normal urine the uric acid distributed itself evenly on both sides of the dialysis membrane. This shows that the uric acid is not firmly attached to the colloids. If normal urine was dialyzed and the dialysate evaporated to the concentration of the original urine, no precipitation occurred if the acidity was kept at, or restored to, its original value. A clear solution of all the crystalloids (including the uric acid, oxalates and phosphates) in their original concentrations

could be obtained in the absence of colloids, so long as the acidity was kept the same. Newcomb feels that, while normal urine undoubtedly contains colloids, it is doubtful whether these have any considerable influence on the precipitation of such constituents as ordinarily go to form urinary calculi.

Pernicious Anemia of Pregnancy. — It is suggested by Wills and Talpade that a relative deficiency in vitamins A and C or some factor associated with this deficiency is concerned in the etiology of "pernicious anemia of pregnancy," and that the proportion of fat and vitamin B in the diet may play some part in determining the incidence of this disease in a population generally short of vitamins A and C.

Annales des Maladies Vénériennes, Paris

25: 481-560 (July) 1930

*Paratherapeutic Icterus: Diagnostic Value of Cholesteremia Level. M. Vauthey.—p. 481.
*Familial Hypotrichosis Due to Endocrine Disturbances Caused by Congenital Syphilis. H. Behdjet.—p. 493.

Paratherapeutic Icterus: Diagnostic Value of Cholesteremia Level.—In the pathogenesis of paratherapeutic jaundice the state of tolerance or of intolerance of the liver and its susceptibility play an important rôle, which should not be overlooked in the general tendency to ascribe to the disease a toxic or a syphilitic origin. Insisting on the importance of a prior hepatic terrain, Vauthey names three factors concerned in the development of jaundice following antisyphilitic chemotherapy: ordinary hepatic presensitization (through alcoholism, gallstones, malaria or tuberculosis); a specific hepatic presensitization due to spirochetes or their toxins, and the action of chemical medicaments. The author then distinguishes two types of paratherapeutic jaundice: (1) cases of syphilomedicinal origin and (2) those of a purely medicinal source. Diagnosis should be based on three criteria considered simultaneously. These are the hepatic antecedents, the intensity of the syphilitic manifestations, and the cholesteremia level. If this level is below normal in the course of paratherapeutic jaundice at the end of the first or in the second period, associated with syphilitic manifestations but without commonplace hepatic antecedents, the jaundice is probably of syphilitic—that is, syphilomedicinal origin. If the level is above normal in the same conditions of evolution of syphilitic infection, but in the absence of manifestations of syphilitic activity, and with evidence of hepatic presensitization, a purely medicinal icterus may be diagnosed. The treatment for the latter form calls for absolute suppression of the medicine linked with the appearance of the disease. Arsenic compounds should be replaced by bismuth salts or mercuric cyanide.

Familial Hypotrichosis Due to Endocrine Disturbances Caused by Congenital Syphilis.—Behdjet reports two cases of this disorder occurring in three generations and among members of one family, and in two generations in the second family. In addition to alterations in the internal secretion glands there existed also other symptoms of congenital syphilis.

Archives des Maladies de l'App. Digestif, etc., Paris

20: 641-760 (June) 1930

*Gastric Pain in Functional Dyspepsias. P. Oury, P. Godard and V. Nichita.—p. 641.
*Syphilitic Celialgia. J. Turriès.—p. 660.
Tetanus in Amebic Dysentery: Case. C. Farmakidis.—p. 669.

Gastric Pain in Functional Dyspepsias.—A comparison between the clinical, roentgenoscopic and chemical examinations of patients with stomach pains and disorders was made by Oury et al. to determine in what measure gastric pain corresponds with variations in the form and chemistry of the stomach. About sixty patients whose troubles could be diagnosed as functional dyspepsia were divided into four groups: (1) hypochlorhydria with normal or exaggerated tonicity; (2) hyperchlorhydria with hypotonia and feeble or no kinesia; (3) anachlorhydria or hypochlorhydria with orthotony, or normal or exaggerated kinesia; (4) simple hypokinetic ptosis with subnormal chlorhydria. The results of their study showed that the division of gastric pains into burning, cramps, twitching, heaviness and so on did not correspond to any precise clinical type. Often the classic types of hypersthenia and hyposthenia did not correspond to anything definite. Phenomena of antiperistalsis as well as alkaline regurgitation from the duodenum played an important part in the establishment of the chemical composition of the gastric sugars examined, and in various dynamic and static disorders. Contrary to expectations, the largest group was not found to answer the definition in group 4, from which the authors concluded that patients with simple ptosis suffer from this disorder only when the ptosis is complicated by secondary disturbances. Finally, the largest number of patients with gastric pains was found to be those with hyperchlorhydria.

Syphilitic Celialgia.—The syphilitic origin of attacks of severe pain in the epigastric region is the subject of the investigations of Turriès. In such cases, the symptoms are cramps, sensations of twisting, burning or of heaviness, often localized in the epigastric region and in general, without notable irradiation except toward the vertebral region. The pain element is not constant but has an alternating or undulating rather than a periodic evolution. Vomiting, hematemesis or nausea is not observed. Salivation is sometimes noted, also slight constipation. The most constant symptom is pain revealed on even slight pressure over the solar plexus. The general condition of the patient is satisfactory; a slight asthenia with irritability, and sometimes insomnia are also symptomatic. Although such cases have usually been variously diagnosed, the author finds that a complete detailed study will reveal in addition to the painful epigastric syndrome two others; namely, manifestations of (1) syphilitic infection, and (2) sympathetic dystonia. In the latter instance, the most common signs of vagosympathetic disequilibrium to be found are vasomotor (emotional and postprandial) disturbances and cenesthesic disorders. As to the syphilitic element, it is rarely great. Spirochetal infection, often latent or disguised, is revealed by various signs, such as anisocoria, inexplicable, long standing refractory encephalitis, and modified reflexes. To prove that the disorders were of the etiology suspected, the author applied therapeutic tests. All digestive as well as the customary sedative treatments failed, while in all the cases considered in this present study only spirocheticidal treatment gave certain and lasting results.

Archives Méd.-Chir. de l'App. Respiratoire, Paris

5: 93-194, 1930

*New Method of Auscultation. F. Parodi.—p. 93.
Roentgen Changes Simulating Hemithoracic Stricture with Superelevation of Hemidiaphragm Due to Pulmonary Sclerosis and in Reality Due to Pulmonary Atelectasis and Paralysis of Phrenic Nerve. E. Sergent and J. Vibert.—p. 116.
Syphilitic Pulmonary Granuloma. J. Dechaume.—p. 127.
Hemoptysis and Meteorological Conditions. J. Chaize.—p. 155.

New Method of Auscultation.—In an analysis of the physical and physiopathologic principles of the most important signs in thoracic auscultation, Parodi notes that vesicular respiration and bronchial respiration are physical entities separated by their origin and their acoustic character. The bronchial bruit is determined by the vibration of air on the vocal cords and in the bronchial tubes, and vesicular respiration by the vibrations of the pulmonary parenchyma during respiratory distention. The height and intensity of the sound perceived on the periphery are relative to the homogeneity and density of the interposed parenchyma. The more dense and thick the tissue that unites the bronchial tubes to the thoracic wall, the higher and louder is the sound. Râles are always formed in the area of greatest stricture in the bronchial tubes. Their tonality is determined by particular pathologic conditions that provoke an increase in the speed of the current of air in the tubes. The tonality is relative to the conditions of the surrounding parenchyma. Each time the sound extends beyond its center of origin, an anatomic alteration of the bronchial or vesicular system is to be inferred. Hence any variation in the depth of physiologic respiration indicates a pathologic alteration. The difficulty in auscultation lies in the distinction of the high or pathologic sounds from the low or physiologic sounds. In order to distinguish these two, to eliminate the low sounds, and to bring in the high sounds perceived on the periphery of the thorax, the author has devised an instrument, which he terms a "phonoselectoscope," constructed according to the principles of modern acoustics. Not only does the use of such an instrument as the one described by the author facilitate the

distinction between pathologic and physiologic signs, thus rendering an easier, earlier and more exact diagnosis of pulmonary diseases, but it also furthers a deeper study of problems in pulmonary and cardiac auscultation. Moreover, it facilitates the teaching of auscultation technic, by means of a scientific method, and permits provision for the nomenclature of pulmonary symptomatology as well as the possibility of simplifying it by correcting faults that are at present regarded as classic notions.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

(54): 977-1010 (June 16) 1930

*Facial Paralysis in Chronic Nephritis. M. Vinard and P. Puech.—p. 977.
Experiments on Alimentary Anaphylaxis in Animals. P. Vallery-Radot.—p. 980.
Vascular Fragility with Virilism. Laignel-Lavastine, M. Hirsch and M. A. Miget.—p. 982.
*Pernicious Anemia Treated with Preparations of Desiccated Stomach. P. Lambin and J. Steenhoudt.—p. 986.
*Distribution of Chlorine in Blood as Therapeutic Indication. L. Ribadeau-Dumas, R. Mathieu, M. M. Lévy and J. Fleury.—p. 991.
Association of Asthma and Syphilis. H. Dufour.—p. 1002.

Chronic Nephritis and Facial Paralysis.—Vinard and Puech report a case of chronic, hypertensive albuminous nephritis with edema and azotemia, and hemorrhage in the petrous canal of the facial nerve, causing facial paralysis. The patient's clinical history revealed a tendency to hemorrhages. Lesions of the kidneys and liver predisposed the patient to such conditions. It is the opinion of the authors that facial paralysis in chronic nephritis is caused not by a primary or a superadded infection but by a local hemorrhage due to vascular rupture analogous to that frequently seen at the level of the nasal fossae, the retina or the brain.

Pernicious Anemia Treated with Preparations of Desiccated Stomach.—Relative to the treatment of pernicious anemia, Lambin and Steenhoudt describe preliminary experiments made with a powdered mucous membrane of hog stomach, and another powder of the dried muscular tissue of the stomach. From their observations they conclude that (1) administered on a meatless diet, the dried gastric mucosa showed only a relatively small activity; (2) ingested together with 200 Gm. of beefsteak, the same quantity of the mucosa powder produced results approximately three times as great; (3) the powdered muscular tissue did not assure continuation of the abatement of the symptoms of the disease.

Blood Chlorine and Its Distribution in Plasma and Erythrocytes: Therapeutic Indications.—The choice of a serum may become problematic when a selection is urgent in order to check a nursling's rapid loss of weight, owing to various causes. Blood examination will give the necessary indications through the determination of the chlorine content in the erythrocytes and the plasma. From this, Ribadeau-Dumas et al. deduce two facts that bear on the application of their special therapy: (1) the absolute value of the amount of the blood chlorine; (2) the distribution of chlorine in the plasma and erythrocytes expressed by a ratio of about 0.48. In cases in which the ratio is found to be above normal, the authors advise ingestion or injection of bicarbonated serum; in some cases a complementary serum is necessary, such as a serum treated with dextrose with or without insulin, or Ringer's solution. If the ratio is not modified but the absolute chlorine value is, an injection of serum treated with dextrose or insulin is required instead of a salt serum, since it is necessary to rehydrate the organism without effecting a new ionic surcharge. If the ratio is lowered, Ringer's solution should be injected. Guided by hematologic examinations, the authors have had excellent results from the use of this serum treatment.

Bulletins et Mém. de la Soc. Nat. de Chirurgie, Paris

56: 735-784 (June 14) 1930

Coxalgia: Extra-Articular Arthrodesis. Vergoz.—p. 736.
*Volvulus of Intra-Articular Pedicled Lipoma of Knee. L. Diamant-Berger.—p. 744.
*Total Volvulus of Small Intestine. Matry.—p. 746.
*Perforation of Gallbladder in Severe Typhoid. Fèvre, Folliasson and Liège.—p. 750.
Perforated Ulcers of Meckel's Diverticulum: Cases. M. Fèvre, Patel and Lepart.—p. 756.
Reconstruction of Abdominal Wall in Inguinal Hernia: Point in Technic. M. Chaton.—p. 767.
Anterior Dislocation of Head of Fibula and Interstitial Emphysema of Calf of Leg in Open Fracture of Lower Third of Tibia. Botreau-Roussel and P. Huard.—p. 769.
Postoperative Cicatricial Stenosis of BBiliary Tract Following Retrograde Cholecystectomy: Case. B. Desplas, G. Durand and J. Meillère.—p. 773.
Gallstones and Chronic Pancreatitis: Case. B. Desplas, J. Dalsace and J. Meillère.—p. 776.
Traumatic Lesion of Radius: Case. A. Mouchet.—p. 782.

Volvulus of Intra-Articular Pedicled Lipoma of Knee: Case.—Diamant-Berger reports a case of the twisting of a pedicled intra-articular lipoma of the knee. The tumor was of traumatic origin. Prior to resection there had been severe pains and functional disturbances which in some measure simulated true articular blockage, yet no torsion of the pedicle had ever been indicated.

Total Volvulus of Small Intestine: Two Cases.—In two cases of total volvulus of the small intestine, the presence of lesions was indicated by an acute occlusion syndrome. Matry describes the symptoms, the diagnosis and the treatment by means of laparotomy and detorsion.

Perforation of Gallbladder in Severe Typhoid.—On the nineteenth day after the development of typhoid, a perforation of the gallbladder occurred in a patient, aged 11. Fèvre et al. advocate cholecystostomy under local anesthesia as the safest course in such circumstances.

56: 785-816 (June 21) 1930

Large Right Scrotal Hernia: Hemicolectomy and Recovery. R. C. Monod.—p. 786.
*Duodenal Fistula Following Suture of Perforated Ulcer: Duodenectomy and Recovery. P. Moulonguet.—p. 792.
Apparatus for Projecting Roentgenograms Without Reduction in Size. Lepennetier.—p. 799.
*Torsion of an Appendix Epiploica of Left Colon. J. Braine.—p. 801.
Recurrence of Papilloma of Bladder. P. Bazy.—p. 806.
Phenyl Salicylate as Urinary Antiseptic. P. Bazy.—p. 814.

Duodenal Fistula Following Suture of Perforated Ulcer.—The treatment in this case of perforated ulcer of the duodenum consisted of suture of the perforation, gastroenterostomy, and drainage of the perforation locale. But shortly afterward there appeared a fistula that was refractory to treatment. A second operation revealed at the seat of the fistula an extensive induration and marked stenosis of the duodenum. Moulonguet resected the whole anterior wall of the first portion of the duodenum, sutured the breach and reestablished the continuity and permeability of the duodenum.

Torsion of an Appendix Epiploica of Left Colon.—Such a torsion abruptly blocks the colon and brings about a decided reflex colic distention throughout, inhibiting peristalsis. In this case there were severe localized pains, with a temperature of 102.2 F. and an absence of abdominal rigidity. After administering a spinal anesthetic, Braine made an incision that revealed a violet-red appendix epiploica of the colon as large as a chestnut, twisted back on itself and attached to the colon only by a filiform pedicle twisted and on the point of becoming detached. The pedicle was sectioned and a drain inserted in the rectovesical pouch.

Presse Médicale, Paris

38: 841-856 (June 21) 1930

Persistence and Value of Antitoxic Immunity in Persons Vaccinated with Diphtheria Anatoxin. G. Ramon, R. Debré, M. and G. Mozer and G. Pichot.—p. 841.
*Albumins and Albumin Quotient of Serum in Pulmonary Tuberculosis. A. Dufourt, Robert and Moreau.—p. 843.
*Physiopathologic and Clinical Interpretation of Pirquet's Cutaneous Allergy in Pulmonary Tuberculosis. F. Parodi.—p. 845.

Albumin Quotient of Serum in Pulmonary Tuberculosis.—In their experiments, Dufourt et al. found that the normal albumin quotient in healthy persons varies from 1.6 to 2. They then examined the serum of twenty-four tuberculosis patients, mostly women, of whom the oldest was 46. The ten patients of the first group (only slightly tuberculous) showed practically a normal quotient: from 1.5 to 2.1. The eight patients of the second group (more seriously affected by tuberculosis) showed wholly conflicting results. Four of the third group of six patients considered clinically as incurable showed low quotients: from 0.6 to 1; the other two were

normal. It is to be noted that the figures in the results do not always conform to the clinical examinations but in general a high quotient is a good indication, a low one unfavorable.

Interpretation of Pirquet's Cutaneous Allergy in Pulmonary Tuberculosis.—Parodi disagrees with the conception of the word allergy as used by Pirquet. He maintains that allergy is only the relative sensitization of certain nerve tracts and that the cutaneous reactions are neurotrophic reactions of reflex nature and of visceral origin. It is doubtful whether there exists a true hypersensibility of the organism to tuberculous toxins. In any case, Pirquet's allergy is not a humoral reaction nor does it belong among the immunity reactions.

38: 857-872 (June 25) 1930

*Acute Abdominal Syndrome of Physiologic Sections of Spinal Cord. A. Hamant, L. Cornil and M. Mosinger.—p. 857.
Tuberculosis and Internal Oxidations. P. Delore.—p. 861.
Alimentary Anaphylaxis and Peroral Desensitization by Besredka Method. R. Jahiel.—p. 866.

Acute Abdominal Syndrome of Physiologic Sections of Spinal Cord.—Hamant et al. call attention to visceral complications following spinal cord traumatism. Abdominal disorders in particular are noted. The lesions may be a wound, a complete section, or spinal cord concussion. In acute transverse myelitis, abdominal meteorism of sympathetic origin is frequent. Surgical operations on the spinal cord, which often give rise to postoperative pulmonary complications, likewise may result in paralytic ileus. Intestinal occlusion may follow sympathetic lumbar ramisection. Traumatisms of the sympathetic chain are also at times accompanied by paralytic ileus. Under clinical considerations the authors note that the first symptoms appear after a period of latency varying from two hours to two days but other authors have occasionally noted much longer delays. In general the syndrome is announced by meteorism. The functional signs vary and are sometimes lacking. The anal and vesical sphincters may show contracture. The temperature is variable; the pulse is usually more than 100; priapism occurs. Sympathetic extra-abdominal disorders are to be found. The authors distinguish between the benign and the malignant forms of the acute abdominal syndrome, describe the evolution of the two forms, and call attention to their association with pulmonary disorders. Necropsy shows decided congestion of the peritoneum and of the viscera. In general, the posttraumatic abdominal syndrome is characterized by (1) abdominal vasodilatation, varying in importance, which in serious forms is manifested by hematuria, hematemesis, melena, and hepatic congestion, (2) disturbances of intestinal motility, (3) gastric hypersecretion and renal dysfunction. Anatomicoclinical analogies follow between the abdominal syndrome of spinal cord section, of traumatic abdominal and of postoperative abdominal origin. In addition to the frequent occurrence of acute abdominal disorders resulting from traumatism of the spinal cord or acute transverse myelitis, the authors observe that they are characterized by abdominal vasomotor disturbances, by disturbances in the motility of the intestine, and by disorders of the digestive and urinary secretions. As to the pathogenesis, their anatomicopathologic verifications and study of the functioning of the peripheral sympathetic show that traumatic inhibition of the spinal cord centers (by its bringing about a real ramisection), as well as the ramisection operation, does not act as one might think by means of a local hyperparasympathetic effect or by one of purely sympathetic inhibition.

Revue Française de Pédiatrie, Paris

6: 137-264, 1930

Oscillations in Human Temperature. Michalowicz.—p. 137.
*Dietetic Treatment of Diarrhea in Nurslings. L. Moll.—p. 177.
*Antituberculosis Vaccinations by the Calmette Method. Prokopowicz-Wierzbowska.—p. 191.
Status Thymicolymphaticus in Children, Followed by Sudden Death. P. Gautier.—p. 213.
Organizations for Distribution of Mother's Milk. Maretzka.—p. 222.

Dietetic Treatment of Diarrhea in Nurslings.—It is essential to find a diet that, during the diarrhea, will give sufficient liquid with enough salt to permit a retention of water and provide enough calories to prevent inanition. The purpose of this "transition diet" is to arrest loss of weight, after which a diet is given to increase weight again. Moll finds that mother's milk is an excellent reparation diet but that it is not a satisfactory transition diet. For the latter he prefers a preparation of milk of almonds and whey. This is especially suited for younger nurslings. For those somewhat older the author prescribes a pudding made of a special flour with water, sugar, egg, salt and sodium carbonate. This is steamed, strained and diluted with tea, whey, milk of almonds or mother's milk. The almond milk diet is richer in calories and it can be given from four to five days, even for two weeks, without exposing the child to danger from the lack of protein or mineral substances. The average duration of this diet is one week, after which the child's ordinary diet may usually be resumed. The author gives recipes and formulas for his various diet preparations.

Antituberculosis Vaccinations by the Calmette Method.—From her experiments with B C G antituberculosis vaccinations, Prokopowicz-Wierzbowska found that the B C G vaccine had no ill effects on newly born children; also that exogenic agents, such as bad hygienic conditions, defective diet, contagious diseases and digestive or respiratory disorders, exerted no influence capable of increasing the virulence of the B C G stock and did not determine the appearance of tuberculosis in the child. Children thus vaccinated who lived in healthy surroundings did not develop tuberculosis. The vaccinations determined an allergy that was shown by the Pirquet reaction in children living in an atmosphere free from the taint of tuberculosis. Some of the vaccinated children who lived exposed to a contagious form of tuberculosis were infected (positive Pirquet reaction) but did not contract the disease. In rare and exceptional cases in which the children were not isolated after vaccination, early infection did result in severe forms of the disease. The author states finally that it is indispensable to isolate the children who are vaccinated, during the time specified by Calmette.

Clinica Pediatrica, Modena

12: 371-462 (May) 1930

*Behavior of Eosinophils in Tuberculosis in Children. G. Belloni.—p. 371.
*Schilling's Hemogram in Normal Persons and in Persons with Pathologic Conditions. I. Gazzotti.—p. 397.
*Incoercible Vomiting in the New-Born: Congenital Atresia of Stomach. G. A. Piana.—p. 431.

Behavior of Eosinophils in Tuberculosis in Children.—Belloni studied the behavior of eosinophils in children with several forms of tuberculosis, before and after the application of antituberculosis treatment. The treatment comprised improvement of the hygienic and nutritional conditions of the children and tuberculinotherapy (both by cutaneous and by hypodermic routes). The author made observations in three groups of children: sixty children who had not received treatment; fifty who had been treated for some time, and twenty-six both before and after receiving treatment. In the last mentioned group, ten children had latent tuberculosis, ten had marked tracheobronchial adenopathy, four had pulmonary tuberculosis, and two had tuberculosis of the bones. The counting of the eosinophils at the second examination was made five months after the treatment had been received, and under the same conditions as it was made the first time. The author considers the results of the first and second groups in relation to those of the third group, before and after the treatment, respectively. The author concludes that in tuberculosis in children (with either a biologic or a clinical diagnosis) there exists a slight eosinophilia, which is related neither to the age or sex of the patient, nor to the localization of the tuberculous lesions. The eosinophilia coincides with an improvement of the patient's general condition in children who had not received treatment. In patients who have already received treatment, the increase of eosinophils is not an indication of the good general condition of the patient but is in relation to a greater positivity of the skin reaction. The several methods of tuberculinotherapy cause in the organism of the children an increase in the eosinophils. However, the behavior of the eosinophils cannot be accepted as having reliable diagnostic or prognostic value in tuberculosis in children.

Schilling's Hemogram in Normal Persons and in Persons with Pathologic Conditions.—Gazzotti studied the behavior of the neutrophil granulocytes in blood pictures made

according to Schilling's method, in ten persons (five of them aged more than 70 years) and in forty-three persons with the following diseases: typhus, paratyphoid, undulant fever, influenza, serous peritonitis, pneumonia, exudative pleuritis, grave septicemia, purulent pleuritis, strangulation of the hernial sac, and acute appendicitis. The figures of the blood picture appear in several tables. The author's results in normal persons were similar to those published by Schilling. The dissimilarity observed in the figures given by patients beyond 70 years may be considered as a manifestation of the changed conditions of the functions of the several organic systems in senility. The figures of the blood pictures made by the author in persons with pathologic conditions agree with those published by Schilling. The neutrophils varied with the severity of the disease. The author considers, however, that the method of examination of the blood proposed by Schilling does not have by itself sufficient diagnostic or prognostic value to replace the ordinary clinical and laboratory methods. It may be a useful (though by no means indispensable) coadjuvant method in the diagnosis and prognosis of several pathologic conditions mentioned which the author observed.

Incoercible Vomiting in the New-Born: Congenital Atresia of Stomach. — Piana reports a case of congenital atresia of the stomach in a new-born infant at full term. The infant was born in a condition of general denutrition. He had incoercible vomiting after receiving even the smallest amount of liquids. The vomiting was of a regurgitant type and the liquids were vomited without showing any modification. The child had also constipation. Feeding was impossible. The patient lost weight rapidly, going down from 1,850 Gm. at birth to 1,250 Gm. six days later. A Nélaton catheter could be introduced no farther than the cardia. The introduction of air through the catheter failed to cause any distention in the epigastric region. The infant died on the sixth day. At necropsy it was found that the capacity of the child's stomach was only 4 cc. and that it had rigid and thick walls. The mucous membranes were atrophic. The development of the muscularis mucosae was deficient in regard to normal but excessive with regard to the volume of the organ. The author considers that the atresia of the stomach in this infant had originated during the early intra-uterine life. The presence of lesions of endarteritic proliferation in the stomach, in the pancreas and in the liver found at necropsy, as well as the tendency to the development of sclerosis in some other organs, indicated that the lesion had a vascular origin caused by the influence of a toxic and infectious factor, probably syphilis. (In this case the father was unknown and the Wassermann reaction was not made in the mother or in the infant.) The author says that syphilis may be considered as the causal factor in some cases of incoercible vomiting in infants.

12: 463-554 (June) 1930

Blood Platelets in Children. E. Fanton.—p. 463.
*Bactericidal and Therapeutic Property of Tin Compounds. P. Valentini. —p. 470.
*Total Nitrogen Content of Blood, Urine and Feces in Child, Considered in Relation to Various Types of Feeding. A. Simonini.—p. 487.
Adiposogenital Dystrophy. I. Soriani.—p. 515.

Bactericidal and Therapeutic Property of Tin Compounds.—Valentini concludes from his experiments that the opportunities to employ preparations of tin are few, owing to the difficult solubility of its compounds. Secondly, preparations of tin have a weak antiseptic potency toward bacteria in general and an especially weak potency toward staphylococci, so that their use in disorders caused by such bacteria appears to the author of doubtful value. The uselessness of preparations of tin in the treatment of tuberculosis (human and bovine) appears evident from this research. As regards the tolerance of the tissues toward injections of preparations of tin in the strengths that he employed, the author thinks it was always rather good.

Nitrogen Content of Blood, Urine and Feces in Child, in Relation to Types of Feeding.—Simonini studied the nitrogen metabolism in children on various kinds of diet. He concludes that the nitrogen content of breast-fed children tends to increase as the child grows older but does not ordinarily exceed a certain physiologic limit. As for the children artificially fed, the author noted an excessive increase in the nitrogen content. Such increase explains why in those children intoxications, dyspepsia and gastro-enteritis due to proteins develop so easily. In children of the third group who have completed the first year of life, the mixed diet is well adapted to their existence, because the nitrogen content is approximately that of breast-fed children.

Riforma Medica, Naples

46: 833-871 (June 2) 1930

Hemo[illegible]thy and Roentgen Rays. A. Ferrata.—p. 835.
*Rare Syndromes of Intestinal Parasitosis. G. Ranieri.—p. 839.
Psychic Variations in Persons Suffering Injuries of Cranium and Spinal Column. F. Allodi.—p. 840.

Rare Syndromes of Intestinal Parasitosis. — Ranieri describes a case of spastic intestinal pseudo-occlusion due to helminthiasis (ascarids and oxyurids). The patient, a boy aged 15, had been admitted to the hospital with a diagnosis of intestinal occlusion, and an emergency operation was contemplated. The patient presented all the symptoms of an acute abdominal syndrome, but some signs (absence of profound asthenia and of cardiac adynamia; subfebrile temperature, vomiting becoming less frequent) pointed to pseudo-occlusion. A number of enemas evacuated old feces with many ova of *Ascaris lumbricoides, Oxyuris vermicularis* and *Trichocephalus dispar.* A purge cathartic eliminated a few ascarids. Recovery followed.

Semana Médica, Buenos Aires

37: 1405-1468 (June 5) 1930. Partial Index

*Ethylhydrocupreine Hydrochloride in Treatment of Purulent Pleurisy in Infants. M. Acuña, S. I. Bettinotti and M. T. Vallino.—p. 1409.
Auriculoventricular Dissociation with Ventricular Block. T. Padilla and P. Cossio, Jr.—p. 1412.
*New Reaction of Choline and Lecithin. J. A. Sánchez.—p. 1416.
Motor Changes, Hemorrhagic Endotheliosis, Splenomegaly and Petechial Purpura as Complications of Endocarditis Lenta. R. Dassen.—p. 1416.
Surgical Treatment of Incontinence of Urine. R. Schwarcz.—p. 1419.
Hemorrhagic Endometropathy of Ovarian Genesis. O. Prestini.—p. 1425.
*Rare Accident in Swallowing Capsules of Tetiothalein Sodium. C. Heuser.—p. 1448.
Necessity of Health Centers for Malariotherapy. F. Gorriti.—p. 1449.
Medical and Mechanical Production of Thrombo-Arteritis During Treatment of Syphilis. T. Areta.—p. 1451.

Ethylhydrocupreine Hydrochloride in Treatment of Pleurisy in Infants.—Acuña et al. treated four infants, aged from 10 to 30 months, who had purulent pleurisy, by means of evacuant tappings, followed by lavage of the pleural cavity with a 5 per cent solution of ethylhydrocupreine hydrochloride, and intrapleural injections of either a 2 per cent or a 5 per cent solution of the same drug. It is claimed that the drug has an elective antiseptic action on the streptococcus in vitro. With the tappings, quantities of pus, laden with pneumococci (only in one of the cases was it laden with streptococci) were removed. In two cases complete recovery was not obtained with the treatment alone, though the patients' general condition improved. In the two cases the performance of a pleurotomy with costal resection was necessary after some tappings. The other two infants obtained complete recovery only from the evacuant ethylhydrocupreine treatment. In the last mentioned two infants the end of the pleural process was characterized by the transformation of the scanty remaining intrapleural fluid, into a sterile, hemorrhagic and gelatinous exudate. In pleurisy in early infancy (which the authors consider a serious condition) the treatment gives a high percentage of complete recoveries. It is also of value in the cases of pleurisy in which an operation is contemplated. It improves the general condition of the patients, thus permitting one to defer the operation till its dangers are minimal.

New Reaction of Choline and Lecithin. — Sánchez explains the mechanism of a new reaction of choline which may be applied to its most important derivatives. The primary reaction consists in the transformation of the molecule of the nucleus of the choline into iodoform, by means of two reactives, iodine-iodide and sodium hydroxide. To apply the same reaction to lecithin, the following method is used: Ten cubic centimeters of a 5 per cent solution of sodium hydroxide and 0.1 Gm. of lecithin is boiled for five minutes. It is then cooled and a 0.5 per cent solution of sulphuric acid is added drop by drop till

a complete acid reaction is obtained. This solution is filtered through a wet filter in order that the fatty acids may be separated. The filtrate contains choline, phosphoric acid and glycerin. With 1 cc. of this filtrate, Lieben's test or the iodoform test may be performed.

Accident in Swallowing Capsules of Tetiothalein Sodium.—Heuser's patient, aged 60, after having expelled some gallstones was told to swallow some capsules of tetiothalein sodium for roentgen examination of the gallbladder. When the capsules were swallowed, one of them was deviated. The patient complained for several days of ardor of the throat and difficulty in speaking. The laryngologist believed that the capsule had lodged in the trachea instead of passing into the esophagus. An examination of the larynx showed edema of the vocal cords but failed to show the presence of the foreign body. Roentgen examination showed a shadow from the fourth cervical vertebra to the insertion of the first rib, and then as far as the diaphragm. This shadow was observed behind the trachea, which outline was clearly manifested in front of the dark shadow. The patient recovered after several days. Roentgenography in this case had a double value, both from the point of view of the interpretation of the roentgenogram, and from the clinical point of view of the diagnosis.

Deutsche Zeitschrift für Chirurgie, Leipzig

224: 353-425 (July) 1930

Pyelovenous Reflux and Hydronephrosis. F. Fuchs.—p. 353.
*Treatment of Tuberculosis of Epididymis: End-Results. F. Felsenreich. —p. 383.
*Isolated Actinomycosis of Kidney Secondary to Empyema of Sphenoid Sinus. H. Recht.—p. 414.
*Primary Sarcoma of Seminal Vesicles with Multiple Brain Metastases and Two Cases of Carcinoma of Seminal Vesicles. H. Junghanns.—p. 418.
Primary Calculus Formation in Posttraumatic Pseudodiverticulum of Urethra. G. Eckhardt.—p. 421.

Treatment of Tuberculosis of Epididymis.—Out of 235 cases treated, Felsenreich is able to report the final results in 147. These cases were treated by operation, irradiation and injection. First of all, it is apparent that recurrences depend more on the presence and severity of a pulmonary tuberculosis rather than tuberculosis of the urogenital system. The same is true of the final results. Furthermore, all three methods of treatment yield equally good results; therefore, operation, at least semicastration, is not justified since conservative treatment yields as good results and does not expose the patient to the dangers entailed by operation. Ten of the sixteen deaths in this series occurred in cases in which only the lungs were involved; in six cases, pulmonary and urogenital tuberculosis was present. In not one case of pure urogenital tuberculosis did death occur. Good general treatment, with conservative preoperative and conservative operative treatment, is the best course of procedure. Radical operation should be reserved for patients of advanced years.

Actinomycosis of Kidney.—Recht reports a case in which the necropsy revealed suppurative nephritis in both kidneys, evidently secondary to an empyema of the sphenoid cells, and foci of actinomycosis in which gram-negative actinomyces were found. No other focus of actinomycosis was found elsewhere in the body. Therefore he concludes that this was a case of primary, isolated actinomycosis of the kidney.

Sarcoma of Seminal Vesicles with Multiple Metastases.—Junghanns relates the case of a man, aged 48, who came to operation with a diagnosis of tumor of the brain. Six hours after a subtemporal decompression, he died. The necropsy cleared the diagnosis. The brain was the seat of many sarcomatous metastases; one was found in the cardiac auricle. The primary tumor was situated in the left seminal vesicle. Microscopic examination disclosed that it was a giant cell alveolar sarcoma, the second now on record. All the symptoms in this case pointed to the brain; none to the pelvis. Junghanns also reports two cases of carcinoma of the seminal vesicle discovered at necropsy. Of 18,951 sections done in the years between 1893 and 1927, carcinoma was found in 2,012. Two of these were the cases of carcinoma of the seminal vesicle. In both cases the left gland was involved. One patient was aged 75; the other, 64. This brings the total of recorded cases of sarcoma to two and of carcinoma to twelve.

Klinische Wochenschrift, Berlin

9: 1289-1336 (July 12) 1930

Calmette's Vaccination Against Tuberculosis. O. Kirchner.—p. 1289.
Significance of Duration of Anesthesia and of Difference Between Anesthetic and Lethal Doses for Choice of Basic Anesthetic. L. Lendle and H. Tunger.—p. 1293.
Affective Circulatory Changes with Especial Consideration of Size of Heart. H. Cramer and E. Wittkower.—p. 1296.
Theory of Mechanism of Uniovulation: Action of Hormone Regulating Menstrual Cycle. G. Dahlberg.—p. 1298.
Test of Mechanical Capillary Resistance of Skin in Hemorrhagic Diathesis. O. Mengler.—p. 1301.
Xanthomatosis of Dura Mater and of Bones of Skull. K. Höfer.—p. 1302.
*Threshold Value of Blood Sugar in Nephroses. B. Fell.—p. 1306.
Familial Nosebleed as Sign of Pseudohemophilia. F. P. Weber.—p. 1308.
Ulcers of Leg in Hemolytic Icterus. M. Gänsslen.—p. 1308.

Threshold Value of Blood Sugar in Nephroses.—Fell tested the threshold value of the blood sugar in seven patients with various forms of nephrosis. After the sugar content of the blood had been determined, the patients were given an intravenous injection of a 30 per cent solution of dextrose. After that the sugar content of the urine and of the blood was ascertained. Tabular reports indicate that in patients with nephrosis the threshold value of the blood sugar is considerably higher than in normal persons. The author plans further investigations to determine the underlying causes (whether humoral, incretory or nervous) of the changes in the threshold value of the blood sugar of patients with nephrosis. He states that there are no indications for disorders in the intermediate carbohydrate metabolism. At least, a retardation in the depression of the blood sugar content was not observed.

Medizinische Klinik, Berlin

26: 953-990 (June 27) 1930

Theoretical Foundations of Vaccination Against Tuberculosis. B. Lange. —p. 953.
Diseases of Eyes Caused by Hydrogen Sulphide. P. A. Jaensch.—p. 955.
Parturition During Twilight Sleep Induced by Solution of Secondary Butylbrompropenylbarbituric Acid. W. Schmidt.—p. 956.
Disinfection of Small Quantities of Drinking Water by Means of Chlorine. F. Hoder.—p. 959.
Toxicology of Edible Turban-Top (Helvella Esculenta). J. Manger. —p. 960.
Criticism of Methods for Prevention of Conception. A. W. Bauer.—p. 961.
*Tophaceous Gout. B. Lewy.—p. 964.
*Splenomegaly and Thrombosis of Splenic Vein. H. A. Epstein.—p. 966.
*Relapse of Measles. H. Liebig.—p. 968.
Hyperplasia of Tonsils. Feuerstein.—p. 969.
Fixation of Complement in Gonorrhea. G. Hopf.—p. 970.

Tophaceous Gout.—Lewy reports the case of a woman, aged 53. She asked medical aid on account of severe gastric disturbances. The examination revealed numerous peculiar growths on the arms and on the hands. The growths had developed during the last five years and were hard but not painful. The patient related that occasionally nodules opened and discharged a whitish mass. The subsequent ulceration that developed always healed quickly. The author thought of true gout and this diagnosis became more probable when an examination of the blood during a purine-free diet revealed a high uric acid content. However, when the contents of a nodule were examined the expected uric acid needles could not be detected and only an amorphous mass containing calcium carbonate and calcium phosphate was found. The case was now diagnosed as tophaceous gout. Roentgen examination revealed the chalky deposits as shadows. This was an additional proof for tophaceous gout because the urate deposits in ordinary gout are not visible in the roentgenogram. Roentgen diagnosis is therefore a valuable aid in differentiating between ordinary gout and the tophaceous form. The fact that the patient had an inoperable cancer of the stomach made frequent tests of the mineral metabolism difficult. However, it was found that the calcium content of the blood was considerably increased. Following the review of several cases of tophaceous gout from the literature the author assumes that tophaceous gout is perhaps not primarily a disorder of the mineral metabolism but is rather a chronic disease of the skin. The patient died as the result of the cancer of the stomach. Excision of the chalky nodules revealed that they were only in the subcutaneous connective tissue and that the underlying musculature was free from them. The author also describes the results of the microscopic examinations.

Relation Between Splenomegaly and Thrombosis of Splenic Vein.—A review of the literature and observations in two cases convinced Epstein that the diagnosis of thrombosis of the splenic vein is extremely difficult. To differentiate this condition from cirrhosis of liver and from Banti's disease usually requires a laparotomy, or it is correctly diagnosed only during the necropsy. However, a thrombosis of the splenic vein should be thought of in all cases of severe splenomegaly with hematemesis, digestive disorders, slight ascites, anemia and leukopenia. Thrombosis of the splenic vein is probable whenever the anamnesis or the clinical aspects do not give indications for cirrhosis of the liver. The thrombosis of the splenic vein is the secondary condition.

Relapse of Measles.—Liebig points out that an attack of measles generally results in immunity against further attacks. However, that there are exceptions to this rule has long been recognized. Some authors differentiate between a second attack of measles that is caused by a new infection and a relapse. The case observed by the author is significant for the problem of relapse of measles respectively for a second infection with measles, because the child was under clinical observation during the course of both attacks and a new infection during convalescence through another patient was not possible. The second exanthem appeared thirty days after the first one. The possibility that the child had German measles rather than measles was disproved by careful observations and the author is convinced that the child had a relapse of measles. Concerning the causes of such a relapse, nothing definite is known as yet. However, the author assumes that some patients have lost the capacity to develop antibodies against the virus of measles or possess it only temporarily. The cause of this abnormality in the immunity processes is not known, but, if the fever is an indicator of the resistance power of the organism against an infection, the absence of fever in the child and the long duration of the first exanthem indicate that it was not capable of forming antibodies.

Münchener medizinische Wochenschrift, Munich

77: 1089-1128 (June 27) 1930. Partial Index

Water Metabolism in Skin Diseases. J. K. Mayr.—p. 1089.
*Superiority of Broadly Built Persons Over Slender Types. E. Schlesinger.—p. 1090.
Complement Fixation in Gonorrhea. F. Hoder.—p. 1093.
*Prophylaxis of Thrombosis and Embolism During Puerperium. M. Wachtel.—p. 1094.
*Cure of Myeloblastic Leukemia. W. Gloor.—p. 1096.
Pulmonary Embolism Following Contusion of Leg and Early Massage. W. K. Fränkel.—p. 1098.
Feer's Disease: Case. G. Hille.—p. 1098.
Hormone of Anterior Lobe of Hypophysis: Effect on Premature Infants. E. Schulze.—p. 1100.
Tribomethanol in Treatment of Severe Chorea. K. Westphal.—p. 1104.

Superiority of Broadly Built Persons Over Slender Types.—Schlesinger reports the results of investigations on the constitutional types of more than 2,000 children and young persons aged between 9 and 18 years. He discusses the method that was employed for the classification, the results of dynamometry and of spirometry, the developmental conditions, the anthropometric values and the constitutional anomalies. In the last part of the article he gives a tabular report, and on the basis of his investigations he comes to the conclusion that among the slender types the predisposition to constitutional anomalies, such as neuropathic conditions, sequelae of exudative diathesis, and muscular weakness that becomes manifest in postural abnormalities is much more frequent than among the broadly built children. However, what is still more important, the latter also show a physical superiority. The dynamometer registered their greater muscular power and tests with the spirometer indicated their greater vital capacity. It could also be demonstrated that in the broadly built types the circumference of the chest and the weight were greater in proportion to the body height than in the slender types, and underdevelopment and undernourishment were less frequent among the broadly built than among the slender. The author points out that from these observations on children and young persons it cannot be inferred with certainty that among adults the conditions are the same. But in spite of this, the investigations have proved that, for children and young persons, the broadly built type is the more desirable.

Prophylaxis of Thrombosis and Embolism During Puerperium.—Wachtel reviews various theories regarding the etiology of thrombosis and embolism, as well as the diagnosis and treatment of these conditions. In discussing the prophylaxis he stresses a nourishing and sensible diet and the regulation of defecation and of urination. During operations strictest asepsis, correct posture and the arrest of hemorrhage are essential. In cases of varicose veins, rubber stockings or bandages should be worn and prolonged standing should be avoided. Obliteration treatment of varicose veins is advisable even during pregnancy. The author recommends injections of a 10 or 15 per cent solution of dextrose. The treatment of varicose veins of the vulva is especially advisable during pregnancy. Women in whom thromboses have developed during former pregnancies should receive daily 3 drops of tincture of strophanthus, beginning several weeks before the confinement. After delivery, medication with digitalis is advisable. Some authors recommend blood transfusions. The author saw good results from dextrose infusions, particularly in anemic women after obstetric or gynecologic operations. As the most important factor in the prophylaxis of thrombosis and embolism during the puerperium, the author considers Walthard's method of gymnastics. The exercises should begin on the first day after parturition. The author describes the breathing and physical exercises for each day. Contraindications to the gymnastics are an existing thrombophlebitis, febrile conditions, great loss of blood, anemia and a serious operation. However, forceps operations and cesarean section are not contraindications. But if it is not possible to begin the exercises on the first day they should not be instituted later. In one instance of a cesarean operation the exercises were begun on the sixth day and the patient developed a pulmonary embolism and died. However, with the exception of this fatality, the results of the exercises were favorable. Among 100 puerperas, in whom the gymnastics had been omitted, there developed six cases of thrombophlebitis, whereas among several hundred others who had taken the exercises there was not a single case of thrombosis.

Cure of Myeloblastic Leukemia.—Gloor describes the clinical history of a patient with myeloblastic leukemia who came under his observation in 1927. Several examinations in the last two and one-half years prove that this cure is a permanent one. The case is of especial interest because the prognosis in cases of myeloblastic leukemia is generally unfavorable. In some instances temporary improvements are noted, but permanent cures are extremely rare and most cases have a fatal outcome after several months. The diagnosis myeloblastic leukemia was correct in this case. The therapeutic success cannot be ascribed to the one or to the other form of treatment but rather to the combination of the different treatments. The patient was given intensive arsenic treatment, received several roentgen irradiations, and intravenous treatment with mesothorium. These therapeutic measures effected a temporary reduction in the leukocytes but after that they increased again. Then a blood transfusion was made and this in turn was followed by roentgen treatment and then by another blood transfusion. After that normal blood formation set in. The same therapeutic procedures were later employed in other cases of myeloblastic leukemia but the improvement was either temporary or entirely absent.

Wiener klinische Wochenschrift, Vienna

43: 833-864 (July 3) 1930

*Demonstration and Treatment of Diseases of Peripheral Arteries. M. Sgalitzer, R. Demel, V. Kollert and H. Ranzenhofer.—p. 833.
Accidents Caused by Automobiles and Motorcycles. W. M. Kreiner.—p. 837.
Transitory Shadows in Pulmonary Hilus of Children with Negative Tuberculin Reaction. K. Dietl.—p. 840.
Inconstancy of Electrocardiographic Signs (Scherf) in Pericardial Effusion. G. Agostoni and C. Papp.—p. 842.
Significance of Hypophyseal Preparations in Treatment of Diabetes Insipidus. Z. Benkovics and J. von Fernbach.—p. 844.
Problems of General Practitioner in Preoperative and Postoperative Care of Patients. F. Kazda.—p. 845.

Demonstration and Treatment of Diseases of Peripheral Arteries.—Roentgen examination of the arterial system of the extremities was performed by Sgalitzer et al. in twenty cases. An iodine preparation was used as contrast medium. The authors come to the conclusion that the method has diag-

nostic significance since it reveals obstructions or stenoses that are caused by arteriosclerosis, endarteritis or spasms, and it localizes an embolus or thrombus. In several instances, namely, in intermittent claudication and in beginning gangrene of the toes, temporary therapeutic effects were noted.

Zentralblatt für Gynäkologie, Leipzig

54: 1729-1792 (July 12) 1930

Action of Hormone of Anterior Lobe of Hypophysis on Ovaries of Infantile Rodents. A. Mahnert.—p. 1730.
Results of Quantitative Determination of Sex Hormone. H. Siebke and P. Schuschania.—p. 1734.
Puberty Metrorrhagia: Hematologic Examinations and Treatment by Means of Repeated Small Blood Transfusions. E. Maurizio.—p. 1748.
*Experimental Prolongation of Pregnancy by Means of Corpus Luteum Extracts. L. Miklós.—p. 1755.
Elephantiasis of Clitoris. H. Baumm.—p. 1758.
Modern Filing Cabinet for Use in Clinic. F. C. Wille.—p. 1760.
Solution of Secondary Butylbrompropenylbarbituric Acid Combined with Spinal Anesthesia. E. Heyer.—p. 1764.

Experimental Prolongation of Pregnancy by Means of Corpus Luteum Extracts.—Miklós states that the function of the corpus luteum and especially its hormonal secretion have been investigated by various authors. He reviews the results of these investigations and then describes his own experiments on rats. It was found that following several injections of corpus luteum extracts the pregnancy of the rats was prolonged not only beyond the average length but even beyond the longest term. Regarding the development of the young, the author states that some of them were somewhat heavier than young rats that had developed without the influence of corpus luteum extracts. It is also noteworthy that, in some of the animals in which the pregnancy was prolonged as the result of corpus luteum injection, the young were dead at birth. It is known that overterm pregnancies in human beings also frequently result in stillbirth. The author thinks that his experiments demonstrate that the corpus luteum influences the termination of pregnancy. However, he does not consider it the only factor. It was also noted that injection of corpus luteum extract on the last day of pregnancy did not cause a prolongation.

Finska Läkaresällskapets Handlingar, Helsingfors

72: 415-509 (June) 1930

*Conservative Treatment of Dacryocystitis and Dacryostenosis. E. Kuhlefelt.—p. 425.
*So-Called Intestinal Infantilism. A. M. Edgren.—p. 440.
*Fibril-Forming Power of Epithelioid Cells in Tuberculous Tissue. I. Wallgren.—p. 450.

Conservative Treatment of Dacryocystitis and Dacryostenosis.—Kuhlefelt has treated conservatively even the gravest cases of dacryocystitis and dacryostenosis and on the basis of his experiences believes that operative intervention is rarely necessary.

So-Called Intestinal Infantilism.—Edgren reports thirteen cases treated from 1923 to 1929. Five patients died, three are well, and the fate of the remaining three is unknown. Investigations in two cases showed greatly lowered fat resorption, the loss of fat amounting to from 34.1 to 53.1 per cent of the fat intake.

Fibril-Forming Power of Epithelioid Cells in Tuberculous Tissue.—Wallgren's results support the view that the fibrils in tuberculous tissue develop from the epithelioid cells.

Norsk Magasin for Lægevidenskapen, Oslo

91: 705-882 (July) 1930

*Syphilis-Arsphenamine-Paratherapeutic Jaundice. H. C. Gjessing.—p. 705.
Occupational Melanoderma: Two Cases. P. L. Rotnes.—p. 719.
Epidemic Lobar Pneumonia. J. Riddervold.—p. 731.
*Grave Anemia: Two Cases. H. F. Høst.—p. 739.
Intravenous Pyelography with the Sodium Salt of 5-Iodo-2-Pyridon-N-Acetic Acid. E. Hjort.—p. 753.
*Phlegmonous Duodenitis: Case. E. Hjort.—p. 758.
*Demonstration of Tubercle Bacilli by Cultivation. O. Sundt.—p. 763.
Renal Glycosuria. L. T. Poulsson.—p. 770.
*New Method of Roentgen Examination of Symphysis Pubis in Women. T. Dale.—p. 782.
Course of Bile and Pancreatic Ducts in Patients with Necrosis of Pancreas. E. Hegge.—p. 786.

Syphilis-Arsphenamine-Paratherapeutic Jaundice: Attempt at Orientation.—Gjessing reports nine cases in syphilitic persons. He believes that the majority of cases of jaundice appearing during arsphenamine treatment, probably also most cases of posttherapeutic jaundice are of infectious nature. Although intertherapeutic or posttherapeutic jaundice can often be cured during arsphenamine treatment or by continued arsphenamine treatment, respectively, arsphenamine should, he says, as a rule not be used, as it is at present impossible to distinguish between the forms in which the treatment is advisable and in which it is dangerous. Even when the probable diagnosis is syphilitic jaundice, arsphenamine should generally be discontinued until the jaundice is past.

Grave Anemia: Two Cases.—Of Høst's cases, both fatal, the first was diagnosed as aplastic anemia, the second, regarded as a peculiar, nonpernicious anemia or an aleukemic myelosis. Massive and frequent blood transfusions resulted in but slight rise in the erythrocyte count.

Phlegmonous Duodenitis: Case.—In Hjort's patient with high fever and all the indications of gravest peritonitis, no signs of peritonitis were found on operation or at necropsy, but in the duodenal wall there was a phlegmon, together with a large number of apparently acute ulcerations in the mucous membrane.

Demonstration of Tubercle Bacilli by Cultivation.—Sundt thinks that in the examination of sputums this method will never supplant direct demonstration of tubercle bacilli, but after repeated negative examinations cultivation may well be attempted. Hohn's method was used by him in twenty-eight such cases, with cultures of bacilli in seven. In his opinion cultivation from pleural exudates and pus offers great possibilities. In examination of the urine the method seemed somewhat less reliable than inoculation in guinea-pigs, but he agrees with other investigators that the two procedures should be used simultaneously.

New Method of Roentgen Examination of Symphysis Pubis in Women.—Dale passed a tube of aluminum 1 mm. thick into the vagina directly back of the symphysis, the film being placed on a holder in the tube. The results of examination in seventy-nine cases are presented. The roentgenograms gave a clearly defined picture with correct measurement of the distance between the pubic bones.

Ugeskrift for Læger, Copenhagen

92: 647-668 (July 3) 1930

Isolation of Hormone of Anterior Lobe of Hypophysis from Urine of Pregnant Women. C. Hamburger and K. Pedersen-Bjergaard.—p. 647.
*Dextrose Treatment of Hepatic Complications Accompanying Calculus in Ductus Choledochus. H. Abrahamsen.—p. 649.
Surgical Diathermy of Hemorrhoidal Tumors. E. H. Rager.—p. 652.
Electrical Lesion of Auditory Organ. K. Egeblad.—p. 654.

Treatment of Hepatic Complications Accompanying Calculus in Ductus Choledochus.—Abrahamsen definitely recommends energetic attempts with dextrose-insulin treatment in case of stone in the ductus choledochus with cholangeitis and parenchymatous degeneration of the liver. His experiences in the two cases reported wholly agree with the favorable results obtained in medical cases by dextrose-insulin treatment of acute or subacute atrophy of the liver. He emphasizes that his patients, both greatly exhausted were operated on in lumbar anesthesia, without the further weakening of the liver due to chloroform and ether.

92: 669-688 (July 10) 1930

*Etiology of Polyarthritides. V. Starcke.—p. 669.
Effect of Operative Interventions on Blood Platelet Count. J. Foged.—p. 678.
Viper Bite. V. Poulsen.—p. 681.

Etiology of Polyarthritides.—In Starcke's review, rheumatic polyarthritides are classed as an interference phenomenon due to various causes that may vary in significance and intensity from type to type and from case to case. Infection is particularly emphasized among the etiologic factors in polyarthritides, and streptococci play the most important part. Pathologic conditions of the joints due to streptococci will probably be regarded as a nosologic entity, like tuberculosis of the joints. The susceptibility to infection and the different characteristics in polyarthritides must depend largely on constitutional differences. Greater importance must be attached to endocrine disturbances as factors in the etiology and pathogenesis. The bibliography contains 149 references.